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SPASM OF THE STOMACH AND DUODENUM FROM A ROENTGENOLOGIC POINT OF VIEW *

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The roentgenologic study of disease in the gastrointestinal tract requires a thorough acquaintance with spasm of the visceral musculature, its numerous manifestations and their comparative importance. Though recognized early by Roentgen workers, spastic phenomena deserve increasing attention and study, because they are relatively common and occasionally very perplexing.

Organic deformity of the luminal contour is the principal roentgenologic sign of disease in the digestive tube, not only revealing a lesion, but directly showing its location, its size and often its character. It shows as an addition to or a subtraction from the luminal outline when brought into view by the administration of substances opaque to the Roentgen ray. Striking examples of organic deformity are seen in the filling defect resulting from gastric cancer and the niche or barium-filled crater of chronic penetrating gastric ulcer, the diagnostic value of which must be conceded.

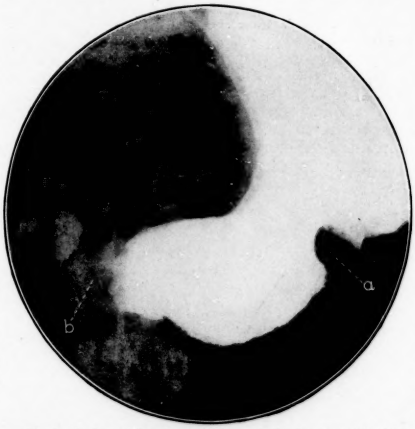

Fig. 1.—Incisura (a) and prepyloric spasm (b) due to gastric ulcer. No visible niche. Both spasms were seen during the vertical screen examination, and persisted after belladonna was given.

Many roentgenologists refuse to make a diagnosis in the absence of these signs, and claim that "sign complexes," made up of indirect manifestations, are of no value. This view is far too radical, for if Roentgen diagnosis were limited only to cases in which these direct indications are noted, many lesions of the alimentary canal would pass undiscovered. Often we are obliged to rely on more remote phenomena for diagnosis, such as alterations of motility, tonus and peristalsis.

All of these can be materially affected by spasm. Further, we are more or less dependent on changes of contour, spastic in nature but set up by an intrinsic lesion, as, for example, the incisura and spasmodic hour-glass of gastric ulcer. Still further, and even more importantly, we encounter and must be able to recognize spastic deformity of outline produced reflexly by extrinsic conditions, remote from the deformed organ. Such deformity may deceptively simulate the distortion produced either directly or indirectly by an intrinsic lesion. Thus the roentgenologist is called on to deal with two types of spasm. We can speak of one type as intrinsic and the other as extrinsic. One is often a help to diagnosis; the other often a hindrance.

SPASM OF THE STOMACH

The favorite playground of spasm, whether of intrinsic or extrinsic origin, is the stomach. Spasm of the stomach, arising from an intrinsic lesion, is generally produced by ulcer, less often by cancer.

Three forms of spasm due to gastric ulcer may be distinguished: (1) the incisura or hour-glass stomach; (2) diffuse spastic distortion, and (3) spasm of the pyloric sphincter.

1. The incisura is a spastic contraction of the circular muscle fibers in the plane of the ulcer, and shows as an indentation of the opposite curvature. Usually narrow, but of variable depth, persistent and permanent as to situation, it suggests at once the nature of the lesion and points toward its site. The cavity of the ulcer itself may often be seen as a niche or pocket, but sometimes neither can be distinguished. In the latter event, the incisura either alone or in combination with other functional disturbances may guide to the diagnosis which otherwise could not be made.

When the incisura is deep, the stomach is bilocular, and the examiner may either describe it as an hour-glass stomach, or emphasize only the incisura. In other instances the width and depth of the constriction are so extreme that the characteristics of a typical incisura are lost, and a pronounced hour-glass form is seen.

2. Gastric ulcer often gives rise to a diffuse spasm affecting a considerable extent of the pyloric segment, whether the ulcer be situated in this region or higher

* From the Mayo Clinic.

* Read before a joint meeting of the Chicago Medical Society and the Chicago Roentgen Society, March 22, 1916.

up in the stomach. The stomach, well outlined in its upper portion, shades off into a poorly filled, vaguely outlined, antral area, which may resemble the filling defect of a pyloric cancer.

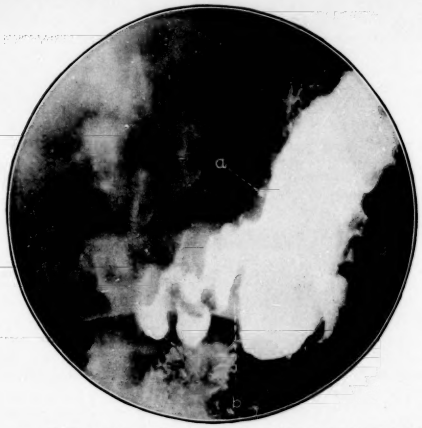

Fig. 2.—Extensive prepyloric spasm due to gastric ulcer. Niche of ulcer seen at *a*. Pyloric end, *b*, showing spasm.

3. An ulcer situated in the pyloric segment is frequently accompanied by retention from the six-hour meal. Ulcers situated well away from the pylorus are occasionally associated with a six-hour retention. This retention has been variously ascribed to reflex pylorospasm, to impairment of peristalsis by the ulcer, to gastric hypotonus, and to pyloric spasticity excited by

Fig. 3.—Incisuralike spasm at *a*. No other Roentgen findings. Small mucoid cancer, lesser curvature, posterior wall, found at operation.

hyperacidity. Be this as it may, we have seen cases of gastric ulcer in which a retention from the six-hour meal was the only discoverable sign. This, taken alone, was, of course, insufficient for diagnosis.

Cancer of the stomach, aside from the organic filling defect produced by the tumor mass, may also produce more or less spastic distortion of the gastric contour. For example, a cancer involving only a portion of the lesser curvature may be accompanied by a spastic indrawing of the greater curvature opposite the lesion. When present, it is usually of considerable width, and exaggerates the luminal narrowing produced by the tumor. The examiner is quite apt to regard this indrawing as a part of the organic filling defect, but generally it is sharply sketched, while the filling defect shades off gradually. The matter becomes of importance in forming an opinion as to the probable extent of the cancerous invasion. Quite recently we have encountered a case in which a small mucoid cancer of the lesser curvature, posterior wall, was attended by a decided incisura. The growth because of its location and small size did not of itself produce any definite deformity, and the Roentgen diagnosis of a lesion was based solely on the persistent spasm.

Fig. 4.—Broad deep incisura (*a*) and extensive spasm throughout greater curvature (*b*). No other Roentgen signs. Small cancer, posterior wall, found at operation.

All of the above-described spastic phenomena are intrinsic, that is, they originate from lesions of the stomach itself. Quite as frequent, perhaps even more frequent, are the extrinsic spasms — those which accompany abnormal conditions outside the stomach, often remote from it.

One of these spasms takes the aspect of an incisura, much like that of gastric ulcer, but usually it is either intermittent, or progresses toward the pylorus, like a gigantic peristaltic wave. Occasionally a marked hour-glass form of the stomach, which may either relax suddenly or persist throughout the entire period of examination, has an extrinsic cause, though it is difficult for the examiner to abandon his suspicion of a lesion in the stomach. Duodenal ulcer is occasionally associated with a gastric incisura or an hour-glass stomach. Equally misleading is a spastic filling defect, of extrinsic origin, occurring more commonly in the pyloric end of the stomach, and resembling a pyloric cancer or the diffuse spasm provoked by a gastric ulcer.

In many instances, after a barium meal, none of it is seen to pass the pylorus for several minutes. At operation a cholecystitis or a chronic appendicitis is found, but no lesion of the stomach. In such a case there is evidently a pylorospasm, not necessarily in the clinical sense, but a spasticity of the pyloric sphincter, for which the only explanation that can be offered is the diseased gallbladder or appendix. Sometimes the entire pyloric third of the stomach is shrunken to a stiff narrow tube which may be palpable to the examining fingers. The tube projects like a spigot from the well-expanded fundus, and shows a striking likeness to the canal through a pyloric tumor. In this species of spasm disease of the gallbladder is frequently found.

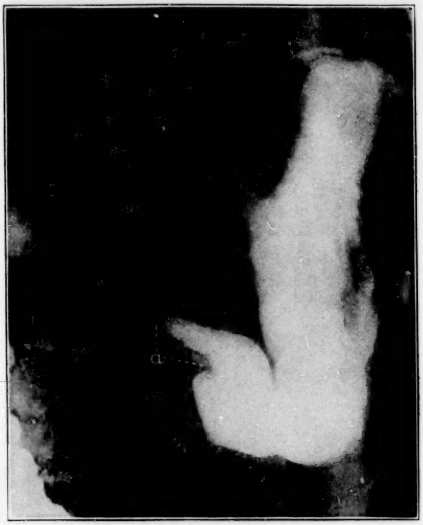

Fig. 5.—Spastic prepyloric narrowing (*a*). At operation: cholecystitis; strawberry gallbladder.

The foregoing extrinsically caused spastic manifestations are all localized or regional. But spasm from an outside source may affect the entire gastric musculature, giving rise to total gastrospasm. Total gastrospasm is characterized by a gastric hypertonus which far exceeds physiologic limits—renders the stomach contracted, tense and inactive. The gas bubble is small. Little secretion is present as a rule. Canalization is delayed, the first swallows of the meal being held high up in the fundus. With continued filling, the ingesta finally reach the pylorus, and the stomach assumes its normal form but is diminutive in size. It lies high up under the left costal arch and entirely to the left of the spine. On further addition to the gastric content, the fundus expands to accommodate it, but the pyloric portion remains narrow. Peristalsis is usually absent altogether, although there may be a few faint, irregular waves. The gastric contour lacks the smooth regularity of the normal filled stomach. Mobility and flexibility are not only actually lessened somewhat by the stiffened spastic gastric wall, but, by reason of the high sheltered position of the stomach, it often seems to be practically immobile and inflexible. The pyloric sphincter, contrariwise, may remain steadily open, and there is an early, free and continuous exit of the barium meal. The whole picture is much like that of extensive gastric cancer, and might easily deceive the unwary examiner. It should be reiterated that the frequent resemblance of reflected gastrospasm, whether local, regional or total, to the filling defect of a gastric cancer or ulcer, makes its recognition imperative, not only by the novice, but by the expert as well. It follows that in the presence of what seems to be a filling defect, pre-

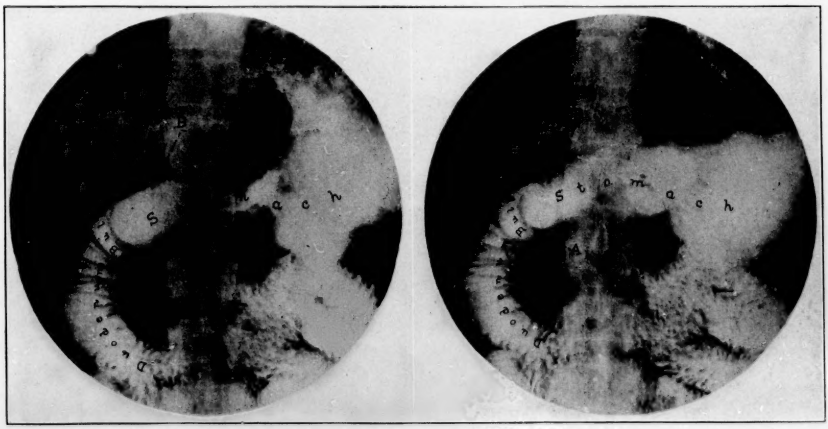

Fig. 6.—Total gastrospasm. The gastric contour is distorted as though by extensive filling defects in the body of the stomach and lesser curvature. *B*. The pylorus, *A*, is gaping. At operation the stomach was found to be normal, but there was definite disease of the gallbladder and appendix.

cautions should always be taken to exclude the possibility of spasm.

The causative agents of extrinsic gastrospasm are hard to prove definitely. Mention has been made of the association of duodenal ulcer and disease of the gallbladder and appendix with gastrospasm. These

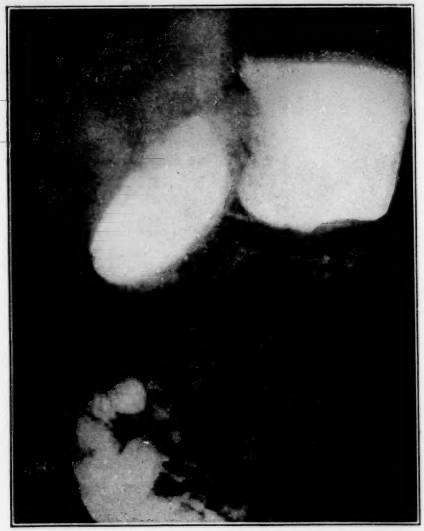

Fig. 7.—Spastic hour-glass stomach. See Figure 8.

associations are so frequent that the assumption of an etiologic relationship seems only rational. Others have noted, as probable causes, hysteria, pancreatic disease, tabes, arteriosclerosis affecting the abdominal viscera, renal and ureteral calculi, uremia, and poisoning by lead, nicotin and morphin. A condition imitating gastrospasm is a distortion of the stomach produced by strong retraction of the abdominal wall. This is usually seen in frightened or nervous patients, who are made apprehensive by the procedures necessary to a Roentgen examination. By quieting the patient's fears and persuading him to relax, the stomach will usually assume its normal form.

Differentiation.—Given a case which shows an irregularity of the gastric contour, the examiner must determine, as far as he can, whether the distortion is due to: (1) an organic lesion producing deformity; (2) intrinsic spasm set up by a gastric lesion, or (3) spasm associated with abnormal conditions outside the stomach.

This is best carried out by a process of exclusion, for while a parallel tabulation of the traits of these three conditions shows some discouraging similarities, there are, nevertheless, certain practical tests by which differentiation can be effected in most instances.

1. Deformity of the gastric outline produced by an organic lesion is persistent, constant in situation and unvarying in aspect. If due to a new growth and accessible to manipulation, it will sometimes correspond to a palpable mass. Its borders are sometimes sharp, but more often gradually shaded off. The niche and accessory pocket of gastric ulcer are pathognomonic of themselves. Adhesions about the stomach, other than those from ulcer and gallbladder disease, are relatively rare. If the gastric lumen near the pylorus is markedly encroached on by an organic process, some degree of obstruction will be shown by a six-hour retention.

Irregularity of contour is still seen at repeated examinations. It cannot be made to disappear by giving an antispasmodic.

2. Spasm resulting directly from an ulcer or cancer in the stomach is manifest usually in the segment involved, and especially in the area opposite the lesion. It is constant in situation. It is persistent and unvarying, although it has been claimed that shallow erosions may cause intermittent spasm. If the spasm takes the form of an incisura or hour-glass, its borders are clear cut, but if a large area is involved, it may show as an indefinite zone of incomplete filling. The lesion provoking the spasm may be seen as a niche, accessory pocket or a neoplastic filling defect. The progress of the meal may or may not be retarded, depending on the extent and situation of the lesion rather than on the spasm.

Intrinsic spasm tends to persist at subsequent examination. It cannot be effaced by giving antispasmodics.

Indirect, remotely caused gastrospasm is often brief in duration or intermittent in its appearance. It may

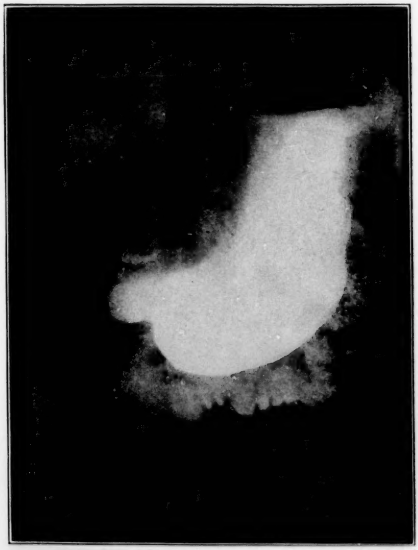

Fig. 8.—Same case as shown in Figure 7. Note disappearance of spasm after administration of belladonna.

be of the migratory type or show a changing aspect from time to time, though continually present in one situation. No tumor mass corresponding to the defect can be felt ordinarily. The borders of the spastic area are sharply delineated, or if the spasm is shifting

during the time of the exposure, the gastric contour may be hazily blurred in outline.

Diffuse extrinsic spasm tends to accelerate gastric motility rather than retard it. If the spasm involves the pyloric sphincter, motility is often retarded, but varies from time to time in the same individual, so that a six-hour retention may be noted at one examination but not at another. Very often in such cases, the stomach is quite large, and, while there is no six-hour retention, the gastro-enterologist may report an excess of secretion.

Remotely reflected spasm is likely to be absent at a second examination. It disappears after the administration of an antispasmodic to physiologic effect.

Of course, it will be readily understood that these differential features are not absolute and inflexible, and the examiner may occasionally be foiled in a satisfactory analysis of his findings. At any rate, he ought not to omit any method that will eliminate indirect spasm from the field of consideration.

A prime quality of remotely reflexed spasm is its instability, so that a second examination may alone suffice to exclude it. A practical test, on which most roentgenologists rely for the exclusion of reflex spasm, is the administration of belladonna or its alkaloid. Irregularity of contour produced by a new growth, infiltration or adhesions of the gastric wall are, of course, not altered by this drug. Likewise, the spasm arising from a lesion, such as the incisura of gastric ulcer, withstands its influence. Spasm reflected from a distant source vanishes.

We have obtained the best results by giving belladonna in the form of the tincture in doses of from 15 to 20 drops, three times daily for two or three days, and then reexamining. The essence of the test, however, does not depend on any arbitrary dose, but on obtaining the physiologic effects of the drug, as shown by dryness of the throat, dilatation of the pupils, etc. If these effects are not obtained the second examination will be inconclusive. Hence, the patient should be seen once or twice daily and the dose increased, if necessary. On the other hand, an idiosyncrasy for belladonna may exist, and should be kept in mind.

Spasm of any sort, whether intrinsic or extrinsic, disappears under general anesthesia. The spasmodic hour-glass stomach, due to an intrinsic cause, and persisting after the administration of belladonna to physiologic effect, is not present at operation because it is relaxed by deep narcosis. Consequently, the surgeon on opening the abdomen and finding no hour-glass may complain that the Roentgen diagnosis is incorrect, and conclude that it is needless to look for any trouble in the stomach. But a careful search will usually reveal a lesion, either in the stomach, or, exceptionally, in the duodenum.

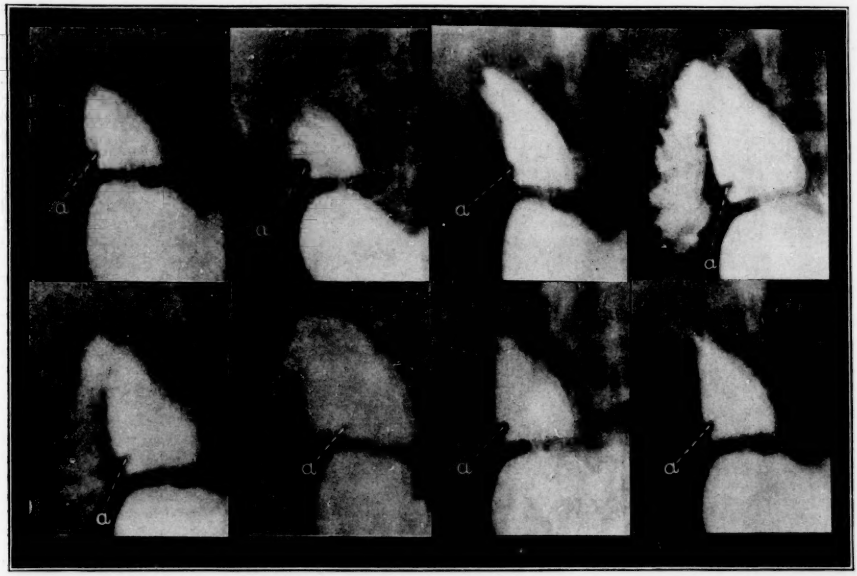

Fig. 9.—Series of bulbus duodeni, showing constant spastic incisura at *a*. Bulb otherwise normal. At operation, small ulcer, anterior wall of duodenum.

In this connection I might say that while belladonna usually relaxes gastrospasm arising from extrinsic causes, the incisura and hour-glass contraction of the stomach associated with duodenal ulcer appear to be an exception, for we have seen several instances in which this variety of spasm withstood the belladonna test.

SPASM OF THE DUODENUM

In the duodenum a probable form of intrinsic spasm which has not heretofore been emphasized is that

accompanying duodenal ulcer. Deformity of the bulb has been generally attributed to the ulcer or its scar, producing an organic filling defect. This is doubtless true in many instances, but the following phenomena deserve consideration.

1. In those cases in which organic distortion is present, the deformity noted at the Roentgen examination often far exceeds the deformity found at operation.

2. Cases are seen occasionally in which the ulcer or its scar as found at operation is small and quite insufficient of itself to produce a recognizable filling defect in the roentgenogram. This fact made us very skeptical for some time of the validity of Cole's sign. However, these cases do frequently show pronounced irregularity of the bulbar shadow, and this must be due to some cause other than the organic alteration of the bulbar wall.

3. In the above described type, on plates made in the dorsoventral position, the disfigurement is seen on the lateral borders of the bulb, although the ulcer is usually situated on the anterior wall.

4. The bulbar distortion often displays other characteristics of spasm. It is clean-cut in outline, projects deeply into the bulbar lumen, and is wholly comparable to the incisura of gastric ulcer.

5. That duodenal ulcer, like other ulcers, is an efficient spasm-producing agent is indicated by its association with spasm in the stomach and elsewhere.

From these facts it seems reasonable to conclude that intrinsic spasm plays an important part in the roentgenologic evidence of duodenal ulcers, and that in the absence of spasm no deformity of the bulb would be seen in many instances, and the case passed as negative.

Fig. 1.—The tumor in situ.

Whether or not any of the remote causes which are believed to induce reflex spasm of the stomach may similarly affect the duodenum is uncertain. There is a more or less current view that the duodenal bulb may be distorted by reflex spasm originating in conditions far removed from the duodenum. In theory this would hold good, since extrinsic spasm has been noted in all other parts of the alimentary canal. But, after a careful review of our cases, we are unable to point out a single specific example of duodenal spasm which originated solely from a remote lesion. Occasionally there is difficulty in securing complete filling of the duodenal bulb, which changes its appearance in each view and is never fully distended, but shows no constant, localized deformity. This may possibly be due to extrinsic spasm, but even so we cannot see how it could be distinguished from the numerous instances in which the cap is not filled because of a scant pyloric inflow or rapid duodenal evacuation. Further, we would expect extrinsic duodenal spasm, if it exists, to imitate, at least occasionally, the constant and definite spasm of duodenal ulcer. This we have never observed, and it would appear that in the presence of an unchanging bulbar distortion one can safely assume that it is due to an intrinsic cause.

SARCOMA OF THE BASE OF THE SKULL *

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Among the intracranial tumors, giving rise usually to symptoms of increased intracranial pressure and sometimes to extracranial signs and symptoms, are found a certain number of sarcomas.

Statistics of intracranial tumors have accumulated slowly. This is not by reason of infrequency, but because, as Dr. Harvey Cushing[1] says, "The progress of the disease is a lamentably slow one, and patients with comparative infrequency end their days in a hospital; hence it is unusual for them to figure largely in hospital reports."

In the surgical service of Johns Hopkins Hospital[2] the number of patients with diagnosis of brain tumor has risen from 0.06 per cent. in the first 5,000 to 0.2 per cent. in the second 5,000; to 0.3 per cent. in the third 5,000; to 0.75 per cent. in the fourth 5,000, and to 1.3 per cent. in the last 3,000, which shows the rapid increase when particular attention is paid to them.

The sarcomas found among the intracranial tumors may originate inside the brain; in the pituitary substance; in the walls of the vessels; in nerve sheaths, or in the bones and periosteum of the cranium. I shall limit my remarks to those arising from the bones of the base of the skull.

The reported cases of sarcoma of the bones of the base of the skull are not numerous. In 1909 Joseph Smith[3] reported two cases of posttraumatic sarcoma of the skull and reviewed the instances collected by Weisswange[4] and Frohlking.[5] The combined series of the two latter writers amounts to 136 cases of sar-

* From the Department of Pathology and Bacteriology, State University of Iowa, College of Medicine.

1. Cushing, Harvey: Intracranial Tumors, Osler's Modern Medicine, 1910, vii, 418.
2. Cushing, Harvey: Footnote 1, p. 419.
3. Smith, Joseph: Two Cases of Posttraumatic Sarcoma of the Skull, Surg., Gynec. and Obst., 1909, viii, 375.
4. Weisswange: Primären Sarkomen der wande der Schadelhohle, Inaug. Diss., Tübingen, 1897.
5. Frohlking: Sarkomen des knocheren Schadelgewohles, Inaug. Diss., Göttingen, 1905.

coma of the skull. Sarcoma of the base is mentioned once occurring in the temporal fossa in one of Weisswange's cases.

Weisswange's paper was written in 1897. I have found reports of twenty sarcomas of the bones of the base of the skull. Of these, twelve occupied the middle fossa; two the posterior fossa, and one the middle and posterior fossae. The location of the other five I was unable to obtain. Two involved the sphenoid extensively (Rothman,[6] Cantonnet[7]); two others involved the gasserian ganglion (Power,[8] Plummer and New[9]) while one invaded all the bones of the face except the lower jaw (Jamison[10]). There were two osteosarcomas (Pisjian,[11] Friedewald[12]); one giant cell sarcoma of the alveolar type (Stetter[13]); one fibrosarcoma (Hartmann[14]); one spindle cell sarcoma (Brissaud[15]), and two round cell sarcomas (Rothman,[6] Plummer and New[9]). Metastases appeared twice, one case showing sarcoma of the internal organs (Power[8]) and another metastases to the left femur (Hartmann[14]).

In 1906 and 1907, Hartmann[14] reported extensively on tumors of the base of the skull, with reference both to their clinical manifestations and to their pathologic anatomy.

In general, he has to say of the tumors of the base of the skull that they occur widespread along the middle or posterior fossa, and may involve the middle and posterior or posterior alone. He gives Seeligman's[16] statement for tumors involving both middle and posterior fossae. They are supposed to develop extradurally, and rarely progress toward the brain from the dura, but invade the bone and sometimes send processes into the adjoining cavities. Because the tumors gradually grow about the nerve roots, gradually disturbances of the cranial nerves will appear.

Fig. 2.—Concavity on removal of the tumor.

There is a tendency to involve only one side; if bilateral, they are almost always carcinoma or endothelioma; exceptionally, bilateral growths may be fibrosarcoma of nerve or very malignant sarcoma.

The three cases of tumor of the base of the skull which Hartmann presents are all sarcomas. One, a small hard nodular, well encapsulated tumor of the middle fossa, passed by a pedicle through the foramen ovale and reappeared in a swelling on the side of the neck. This tumor in the skull was 5 cm. in diameter, and broke through the dura, deforming but not penetrating the temporal lobe. The consistency was hard and brittle. The whole mass was yellowish-gray. Another penetrated the bone of the left middle fossa. The third was an intradural sarcoma of the left internal auditory meatus involving the seventh nerve and the pars acustica of the eighth. From the literature, he cites a cystic sarcoma of endothelial origin in the posterior fossa on the posterior surface of the petrous portion of the temporal bone (Campo[17]); a round cell sarcoma on the under surface of the base of the sphenoid, together with a tumor at the left of the sella turcica and near the foramen magnum (Rothman[6]); a spindle cell sarcoma of the middle fossa involving the orbit and occipital bone (Brissaud[15]), and a subdural giant cell sarcoma, alveolar in type, on the posterior surface of the petrous portion of the temporal bone (Stetter[13]). Still another case is a walnut sized tumor involving the gasserian ganglion with multiple sarcomas of the internal organs (Power[8]).

Cantonnet[7] reports a case of sarcoma of the sphenoid:

> Man, aged 22, entered the hospital complaining of trouble with vision and motion of his eyes, together with a paralysis of tongue and soft palate appearing slowly during five months. Physical examination confirmed his subjective symptoms. Six days after entrance, violent headache developed in the occipital region. Ten days after entrance he complained of dysphagia. A swelling in the nasopharynx was lanced, but only blood was evacuated. In a week's time the swelling began to slough. The tissue came away piecemeal without suppuration. In nine days' time the mass had enucleated itself, leaving a deep pocket with smooth sides not suppurating and not bleeding. Subjective disturbances of the trigeminal appeared, and the headache became extreme, all movements of the head being very painful. Lumbar puncture gave only normal phenomena. Mentation was not disturbed, and death occurred on the forty-first day.
>
> The necropsy showed a slight area of cortical softening in the right temporal region. The pituitary stem was thickened, being 0.5 cm. in diameter. The part of the hypophysis behind the stalk projected on the surface between the posterior clinoid processes. This mass also extended backward to the anterior occipital foramen. The anterior part of the sella was normal. On the lower surface of the base there

6. Rothman: Round Cell Sarcoma on the Under Surface of the Base of the Skull, Ztschr. f. klin. Med., xxiii, Nos. 3 and 4.
7. Cantonnet: Sarcoma de la base du crane, Bull. et mém. Soc. anat. de Paris, 1906, xxxi, 505.
8. Power, D'Arcy: A Walnut Sized Tumor Involving the Gasserian Ganglion, Tr. Path. Soc. London, 1886.
9. Plummer, W. A., and New, G. B.: Tumor of the Middle Cranial Fossa Involving the Gasserian Ganglion, THE JOURNAL A. M. A., April 4, 1914, p. 1082.
10. Jamison: Imp. Customs Med. Report, Shanghai, 1881, xxi, 92.
11. Pisjian: Algunas consideraciones sobre un caso de osteosarcoma de la base del cranio, Rev. med. de Sevilla, 1906, xlvi, 78.
12. Friedewald: Osteosarcoma at the Base of the Skull, Maryland Med. Jour., 1886-1887, xvi, 500.
13. Stetter: Subdural Cystic Giant Cell Sarcoma, Arch. f. Ohrenh., xxiv, 143.
14. Hartmann: Beiträge zur pathologischen Anatomie und Klinik der geschwulste der Schadelbasis, Jour. f. Physiol. u. Neurol., 1905-1906, vi, 209; ibid., 1906-1907, vii, 25.
15. Brissaud: Spindle Cell Sarcoma of the Middle Fossa, Lecons sur les maladies nerveuses, Saltpétrie re, 1893-1904, p. 393.
16. Seeligman: Deutsch. Ztschr., f. Nervenh., viii, 438.
17. Campo: Cystic Sarcoma of Endothelial Origin in the Posterior Fossa, Riv. sper. di freniat., xxiii.

was a projecting mass involving the sphenoid, the basilar process and condyles of the occipital bone in their cartilaginous part. The tumor presented a prolongation from each side beneath the great wings of the sphenoid, especially on the left side, where the mass invaded the pterygoid processes and the borders of the foramina ovale, rotundum and spinosum. The temporal bones were intact. Section through the

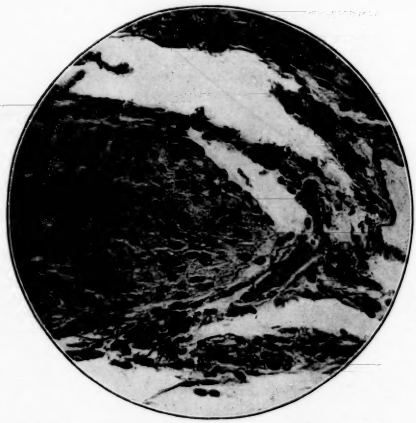

Fig. 3.—Section through central part of the tumor, × 150.

sphenoid showed the sphenoidal sinuses to be filled with tumor tissue. The left cavernous sinus was obliterated except for the carotid artery. The inferior surface of the mass formed the wall of the retropharyngeal pocket evacuated during life. The surface of the tumor was uniformly pink. The consistency was fibrous, not osseous. It was readily indented by pressure. Histologically, traces of the pituitary gland were found. The main cellular constituents were embryonic cells with large nuclei. There were no mitoses, and there was no inflammatory reaction. The diagnosis of sarcoma of the sphenoid was made because of the involvement of the sphenoid as a whole and the extension of the tumor into bone rather than brain.

Last year there was reported from the Mayo Clinic[9] a round cell sarcoma of the middle fossa involving the gasserian ganglion. In this case the appearance of symptoms was preceded by enlargement of the right cervical lymph nodes. These were removed before the patient's admission to the clinic, and their histologic nature was not determined. The symptoms were limited to the fifth nerve without sign of intracranial pressure. The extent of the tumor was not determined at operation, and no necropsy was permitted.

In connection with the case referred to, I report an instance of sarcoma of the sphenoid occupying the anterior fossa in a case which recently came to necropsy at the University Hospital:

REPORT OF CASE

History.—White man, aged 43, with negative family and social history, had had exanthems, smallpox twice, twelve attacks of pneumonia and repeated tonsillitis and quinsy each winter. There had never been any injuries to the head. Following his second attack of smallpox, which occurred nearly two years previous to death, he had headache every day varying from a dull pain in the left temple to a very severe pain radiating to the right temple and sometimes to the occiput. His eyes had been weak, and he was bothered by flashes of colored light. At the same time there was a roaring in the ears which later disappeared. There was no dizziness or diplopia. Three months following the onset of the eye symptoms, the sight of the left eye began to fail rapidly. Six months from onset the sight of the right eye also began to fail.

Physical Examination.—This showed the man to look decidedly ill and sallow, almost icteroid in color. Thoracic, abdominal and circulatory evidence was all negative.

Nervous System: The left eye is closed, but there is no paralysis of the left lid. Eyes move freely in all directions. There is no nystagmus. The right eye reacts to light and accommodation. The left eye reacts to neither. The seventh, motor fifth and twelfth are intact. There is no tenderness over the cranium. The tongue is coated, moist and straight. Muscular power is equal in upper and lower extremities. The reflexes are not significant except that the orbital is exaggerated. Touch and pain are intact throughout. The station is almost perfect. Romberg's sign is absent, and the patient walks a straight line with ease. He is unable to repeat the alphabet. There is hesitation of speech. He says he can think the right word but is unable to speak it.

Ophthalmoscopic examination showed optic neuritis with retinal exudates and no light perception in the left eye.

Urine, stool and blood examinations negative.

Cerebrospinal fluid, not under pressure, clear colorless, cell count 0. Noguchi serum-globulin +. No Wassermann done on spinal fluid.

Wassermann on blood negative.

A decompression over the left temporal region revealed nothing but increased intracranial pressure, hernia cerebri forming at once.

Necropsy.—The only point of interest in the necropsy is in the head. The hernia cerebri produced by the decompression requires no comment. The under surface of the brain presents in front a globular mass much more dense than the brain substance. This mass is about 9 cm. in diameter and is distinctly encapsulated, separating freely from the brain substance above. Below the globular mass is intimately connected with the periosteum covering the

Fig. 4.—Tumor growth in the substance of the dura.

sphenoid bone, between the two lesser wings of the sphenoid. This portion of the bone, to the periosteum of which the tumor is connected, was chiseled away and removed in connection with the tumor. The covering of the ethmoid cells was chiseled away, and the walls of the cells appeared to be of the usual thickness, and nothing resembling the substance of the tumor was to be seen here, or in the sinuses of the sphenoid bone. The tumor mass is about equally

distributed to either side of the middle line. It appears that the optic nerves are somewhat flattened at their point of exit and somewhat proximal thereto. The substance of the tumor is, for the most part, firm, yet not fibrous. It is rather granular and friable. Further section of the brain or tumor was not made at this time.

The tumor measures 7.5 by 6.5 by 5 cm. Its consistence is uniform throughout. In front there is a natural cleft extending about 1.5 cm. into the substance of the tumor, from which cleft a fold of dura mater can be stripped away very readily, this having no connection with the tumor. The dura mater covering the sphenoid bone aside from that at the site of fixation of the tumor to the bone is not connected in any way to the tumor.

A section from the tumor found in the cranial cavity presents an irregularly lobulated appearance, the lobules being separated by fairly broad bands of connective tissue. Blood vessels are not very numerous, and they are carried, for the most part, by broader bands of connective tissue. The cells are of the spindle shaped type, presenting this shape more or less depending at what angle with the longer axis the knife happens to cut the cell. Mitotic figures are not numerous. A section of the tumor prepared with Mallory's anilin blue connective tissue stain shows that the tumor cells are everywhere separated by a reticulum of connective tissue.

A section was made through the point of attachment of the tumor to the sphenoid bone. Superficial to the bone the appearance of the tumor as described above may be seen, in addition to which may be mentioned dense bands of fibrous tissue, arising apparently from the bone, passing out between the lobules of the tumor. A portion of the dura mater included in this section shows an endothelial surface unbroken and without proliferation, with the exception of one small point in which the lower margin of the endothelium has disappeared entirely, and a nodule of tissue resembling that of the tumor occupies the substance of the dura and projects slightly from it. In the substance of the bone the intertrabecular spaces are seen to contain cell masses having the same order, type of cells and arrangement as those observed in connection with the tumor.

Something of the nature of these tumors may be gained from the brief review given. In general, they are well encapsulated and separated from the brain substance by pia-arachnoid, altering the brain substance by pressure changes only. The cranial nerves sometimes give the only evidence as in those growths involving the gasserian ganglion. Frequently, however, there is extracranial evidence appearing in the nasopharynx, the hollow portions of the bones adjoining the nasal cavity, the ear or in metastases, especially to the cervical lymph nodes.[18]

18. In addition to the references already given, the following will be found of interest:
Chvostek: Ein Fall von Sarkom des rechten facialis an der Schadelbasis: Wien. med. Presse, 1885, xxiv, 1057.
Fazio: Sarcoma della fossa cranica media diagnosticate in vita, Ann. clin. d. hosp. incur., 1883, N. S., viii, 155; Sarcoma of the Middle Fossa of the Skull, Gior. di. neuropatol., 1884, ii, 103.
Schwidop: Ein Fall von Sarkom der Schadelbasis mit sekund Affection des Sclafenbeines, Arch. f. Ohrenh., 1893, xxxv, 39.
Hogg: Sarcoma of the Base of the Skull Involving the Ear, Australasian Med. Gaz., 1896, xv, 282.
Camara Pestana e Bello de Moraes: Sarcoma do base do craneo, Arch. de med., 1898, ii, 67.
Lucato: Sarcoma della basa del cranio, Riv. med., 1907, xv, 127.

Deep Breathing.—Ordinarily breathing should be unconscious, but every day deep breathing exercises should be employed. "A hundred deep breaths a day" is one physician's recipe for avoiding tuberculosis. A Russian author, who suffered a nervous breakdown, found—after trying many other aids to health without success—that a retired life for several months in the mountains in which simple deep breathing exercises practiced systematically every day formed the central theme, effected a permanent cure.—*How to Live.*

RESULTS FROM BLOOD TRANSFUSION

IN THE TREATMENT OF SEVERE POSTHEMORRHAGIC ANEMIA AND THE HEMORRHAGIC DISEASES *

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My active interest in the subject of blood therapy became aroused about two years ago, when I was able to follow closely the course of a patient under the care of Dr. Franklin A. Dorman.

This patient, a primipara, after a tedious but otherwise normal labor, gave birth to an infant weighing 6 pounds, 12 ounces. There was a small perineal tear which was repaired at once. The loss of blood accompanying the delivery was insignificant. For the first week the patient was slightly toxic, the temperature ranging from normal in the morning to about 100.5 F. in the evening; during this time she was flowing very freely. As the temperature persisted and became higher, and the flow increased, Dr. Dorman decided to explore the uterus. This was done on the eleventh day, under light chloroform anesthesia, with negative findings. Hemorrhage was so profuse during the exploration that it became imperative to pack the uterus. The packing was removed after twenty-four hours, followed by a severe chill and a rise of temperature to 104.4 F. The following day there was another chill and a rise of temperature to 104.2 F. On the fourteenth day the flow was severe enough to produce syncope, and on the sixteenth day, after the expulsion of several ounces of clots, the patient collapsed and was thought to be dying. After packing of the vagina and the use of vigorous stimulation there was some reaction, but the prognosis at this stage was considered well nigh hopeless.

Dr. Edwin B. Cragin saw the patient, in consultation with Dr. Dorman, and advised the injection of blood serum to control the hemorrhage. Instead of this, however, a blood transfusion was decided on and given two days later (on the eighteenth day) by Dr. Edward Lindeman. Nine hundred c.c. of blood, from a professional donor, were transfused, followed by a chill and a rise of temperature to 103 F. The bleeding, which had resisted the usual drug treatment, stopped at once, and within six hours, the large, flabby, subinvoluted uterus, which reached nearly to the umbilicus, disappeared into the pelvis. The improvement in the patient's general appearance was striking. The flow of milk, which had about stopped, reappeared, and the mother was able to nurse her infant. From the time of the transfusion there was no further bleeding. Convalescence was rapid and uneventful.

Aside from the article of Ottenberg and Libman,[1] most of the recent papers on blood transfusion deal largely with the question of operative technic, and give a wide field of indications, but are lamentably lacking in recording the results obtained. The majority of transfusion workers are overenthusiastic, and are using the procedure without proper discrimination as to indications; onlookers, viewing this work in unwisely selected cases, are inclined to underestimate its true worth. Crile's oft quoted remark still holds good: "Judiciously employed transfusion will surely prove a valuable, often a life saving resource; injudiciously employed it will surely become discredited." In view of the conflicting opinions as to the therapeutic value of blood, the philosophic review of this subject by Hartwell[2] deserves serious consideration. As Hartwell has pointed out, the transfusion of blood from one

* Owing to lack of space, this paper has been abbreviated in THE JOURNAL by the omission of tabulated case reports. The complete article appears in the reprints, a copy of which will be sent by the author on receipt of a stamped addressed envelope.

1. Ottenberg and Libman: Am. Jour. Med. Sc., July, 1915.
2. Hartwell: New York Jour. Med., November, 1914.

individual to another should be considered as a homologous transplantation of tissue. This transplant is endowed with the characteristics of living tissue, and is not merely the transfer of a chemical and physical mixture.

After a transfusion, the recipient's blood will show an increase in the number of red cells, a rise in hemoglobin percentage and a decrease in coagulation time. There is increasing clinical evidence that whole blood is *hemostatic, hematopoietic* and, in selected instances, *antitoxic* and *bactericidal*. It is indicated, then, in (1) hemorrhage, of various types and degrees; (2) in selected cases of anemia, both primary and secondary, not due to hemorrhage, and (3) in selected toxic and septic conditions.

Blood transfusion has been used in the three classes of cases mentioned, but at this time only the first group will be considered. It is my desire, in this paper, to put on record the results obtained by blood therapy in twenty-seven cases of simple and pathologic hemorrhage. Thirty-four transfusions were given in twenty-three cases in this series. Four cases were treated by intramuscular injections of blood. For convenience the following classification will be used:

I. Simple hemorrhage:
  1. Acute posthemorrhagic anemia.
  2. Chronic posthemorrhagic anemia.

II. Pathologic hemorrhage:
  1. Hemophilia.
  2. Purpuric group.
    (*a*) Hemorrhagica neonatorum.
    (*b*) Symptomatic and idiopathic purpura.
  3. Secondary hemorrhagic disease.

I. SIMPLE HEMORRHAGE

1. *Acute Posthemorrhagic Anemia.* — This may follow trauma, labor, operation or any accidental cause, or may be a complication of ectopic pregnancy, gastric or duodenal ulcer, typhoid fever, etc. In this form of acute anemia, if the bleeding point or area can be clamped or controlled, the introduction of new blood into the system will prove specific. No other measure will so promptly resuscitate a dying patient. In fact, it is the only efficient remedy if hemorrhage has gone beyond a certain degree. When the source of the hemorrhage is not accessible without operation, as in gastric or duodenal ulcer or typhoid fever, judgment as to the proper time to administer blood is required. As a rule, it is better to wait until bleeding has ceased. If, however, the anemia is severe enough to endanger the life of the patient, even though active bleeding is still going on, it is safer to transfuse a moderate amount of blood. The hemostatic action of new blood is often prompt, and the stimulating effect is always gratifying. In the profuse bleeding, which, for example, may accompany the rupture of an ectopic pregnancy, transfusion and operation should be performed simultaneously.

2. *Chronic Posthemorrhagic Anemia.* — This may result from repeated small losses of blood, as in persistent epistaxis, intestinal ulceration, bleeding hemorrhoids, or metrorrhagia. The systematic losses of small or moderate amounts of blood cause, first, overstimulation, and later, exhaustion of the hematopoietic system. A stage is reached in which even though the source of the hemorrhage is controlled or removed, the ability to manufacture new blood seems for a time arrested. In this condition no other remedy will compare in efficacy with whole blood in producing hematopoietic stimulation. In acute anemia, a single large transfusion is indicated, while in the chronic type better results are obtained by giving serial transfusions of small or moderate amounts of blood. Transfusions were made in seven cases of acute and four of chronic posthemorrhagic anemia. The results were most satisfactory, except in the few instances in which the complicating disease rendered the prognosis hopeless.

II. PATHOLOGIC HEMORRHAGE

1. *Hemophilia.*—This is a hereditary and congenital disease characterized by frequent, obstinate and protracted bleeding, external, interstitial or synovial, spontaneous or traumatic. In this affection the essential feature is greatly delayed coagulation time. The platelet count is normal quantitatively but deficient qualitatively (Fonio). According to Howell, there is a decrease in the prothrombin. Addis has found in hemophilia no quantitative deficiency in prothrombin, but there is a qualitative difference inasmuch as it showed a very slow rate of change into thrombin in the presence of calcium and thrombokinase. He found that the addition of a very small quantity of normal prothrombin greatly accelerated the coagulation of hemophilic plasma, whereas the addition of an equal quantity of hemophilic prothrombin had no effect. He concludes, therefore, that hemophilia is due to an inherited anomaly in the construction of prothrombin, which reveals itself in the unduly long time required for activation. Theoretically and practically the best method of dealing with the intractable bleeding of hemophilia is by the transfusion of homologous blood, from an alien donor, thereby introducing an excess of the elements necessary for coagulation. Injections of whole blood or serum or the use of thromboplastin locally will often control the bleeding, but in obstinate or intractable cases the indications are best met by the transfusion of unmodified homologous blood. While the disease itself is not cured, the alarming and dangerous symptom is controlled, and immunity against excessive bleeding is established for a variable period. Prophylactic injections of blood should be administered from time to time, for as age advances the bleeding tendency diminishes, and may cease altogether at maturity.

CASE REPORTS

There are six cases of hemophilia in this series:

CASE 1.—A boy had been bleeding for a week when seen, and was very anemic. An emergency transfusion of 40 c.c. of blood was given, the father acting as donor. There was immediate resuscitation, and cessation of the hemorrhage until the next day, when it began again, but less actively, and continued intermittently for another week, in spite of treatment. A donor, unrelated to the patient, was selected and another transfusion given. The bleeding, which was active at the time of the operation, stopped during the transfusion, and up to the present time (over a year) there has been no further hemorrhagic tendency.

CASE 2.—There were joint hemorrhages, but active bleeding was not present at the time of the operation.

CASE 3.—This was of unusual interest. As I saw the patient only once—at the time of an emergency transfusion—I quote from a history kindly furnished me by the physician in charge, Dr. C. A. Spivache: "Leo Z., born April 19, 1915. Normal presentation and delivery.

"*Family History.*—Father, 30 years of age; healthy. Mother, 25 years of age; very stout. During pregnancy she suffered with nephritis which yielded to treatment. Brother, born Feb. 10, 1914. Six days later bleeding started at the cord, and was partly controlled by local applications. Two days

later the cord was sutured and hemorrhage was controlled. On March 15, the baby was circumcised and profuse bleeding from the wound immediately set in. Local applications were unavailing. March 16, the baby had a convulsion. On March 17, the baby was exsanguinated and died.

"Present Condition.—The history of the first child led me to dissuade the parents from circumcising this baby, but as the grandfather insisted that the Jewish rite be performed, and as the mother declared that she might as well learn now whether the baby was a bleeder or not, we finally circumcised the baby on May 15, 1915, when he was 5 weeks old.

"He was circumcised at 4 p. m. The method of circumcision was according to the Jewish custom, which necessitates suction of blood from the wound by the operator. After the operation, the wound was securely tied up and no abnormal bleeding occurred at the time. Three hours later, I was hastily summoned and found the bandage and baby's garments, as well as the bed clothes saturated with blood.

"I redressed the wound, using suprarenal extract powder and injected a standard dose of coagulose intramuscularly. The bleeding at the site of the circumcision was temporarily controlled, but the puncture made by hypo bled until dressed with collodion. I watched the case for four hours and then injected coagulose again. Early the next morning I was again called and found the baby bleeding profusely. I injected coagulose for the third time, with the same result, and repeated this treatment on two succeeding occasions. On May 28 the last injection was given. Meanwhile the baby was growing weaker and anemia was marked. On the same day Dr. Alfred Hess was consulted, and he advised the use of coagulen per injection and thromboplastin locally. In spite of all treatment bleeding continued. As the baby was fast becoming exsanguinated, I advised blood transfusion as a last resort. Curious to relate, when I mentioned blood transfusion to the family, several members offered their blood, but when the time for operation arrived each one claimed a different malady. At last we found a donor and at midnight Dr. Peterson performed the transfusion; 180 c.c. were withdrawn and injected by the syringe method, intravenously. Marked improvement was noted immediately. The baby assumed a healthy glow and bleeding of the wound ceased. A new dressing was applied and allowed to remain on until June 2, when a small clot at the frenum was dislodged and a little oozing followed.

"In the evening bleeding increased. Then I gave an injection of 10 c.c. of blood intramuscularly. Bleeding stopped, and after a few days the wound healed under local treatment. A month later I saw the baby, and found him thriving and normal in every respect."

CASES 4 and 5.—These patients were brothers. The older boy had shown a bleeding tendency since infancy. The history and blood tests indicated a mild form of familial hemophilia. The younger boy bruised easily and showed a slight tendency to bleed. Both were given prophylactic injections of whole blood intramuscularly.

CASE 6.—A boy, aged 19 months, was admitted to the Post-Graduate Hospital with a history of frequent epistaxis. There were a large hematoma in the right gluteal region, and bruises on the body. The family would not or could not furnish a donor, so while we were doing a transfusion in another case, the donor allowed us to withdraw several ounces of blood to be used for this boy. An intramuscular injection of 20 c.c. of unmodified blood was given at once. The remainder of the blood was citrated and set aside. Two days later the intern, following my instructions, gave an intramuscular injection of citrated blood. The patient began to bleed from the needle puncture, and continued to bleed for two days. Pressure and serum and blood were used locally without effect. Finally, with a small round needle and fine catgut, I ligatured the puncture opening and then applied a collodion dressing and a firm bandage. There was no further bleeding.

2. *Purpuric Group.*—(*a*) Hemorrhagica Neonatorum: Hemorrhagica neonatorum probably belongs to the purpuric group, and is dependent on some form of toxemia. Under all circumstances it is a serious affection with a bad prognosis. Before the introduction of blood therapy in the treatment of this condition, the mortality was as high as from 50 to 75 per cent. The serum treatment of Welch, the intramuscular injection of whole blood (Schloss' method), and blood transfusion have been attended by brilliant results, and the mortality has been reduced to 5 or 10 per cent. According to the experience of Lespinasse of Chicago, and Green of Boston, blood transfusion is the method of choice and will often prove life-saving after the failure of all other methods. The first transfusion for hemorrhagica neonatorum was reported in 1908, by Dr. S. W. Lambert[3] of New York. The operation, direct transfusion by suture anastomosis of the left radial vein of the father to the right popliteal vein of the infant, was performed by Drs. Carrell and Brewer, and the life of a dying infant saved thereby. Lambert concludes his report as follows:

> To review the facts of the case: Hemorrhages and fever began simultaneously; normal temperature was reached forty hours after the onset of fever, but the hemorrhages became progressively worse for three days after all fever had disappeared. At the time of the operation the baby was in a dying state and had palpably only a few hours to live. Immediately afterward the baby was in perfect health. There was no period of convalescence.
>
> Such a sudden change in condition could not be due to a structural regeneration in the capillary vessels or to a sudden overcoming of an infection; clinical experience will permit of no such inference. Neither the crisis of a pneumonia nor the relief of a spasmodic croup can be compared with the observed fact in this case, either from a point of view of reversal of pathological condition or of lapse of time necessary to bring it about.
>
> The only possible explanation of so rapid a change must be found in a chemical condition of the blood. And the final conclusion as to the nature of the disease is that melena neonatorum is a congenital malformation of the blood of unknown chemical nature. The solution of the problem of its etiology is to be found in the chemical study of the processes of osmosis in the capillary vessels, of the chemistry of the blood coagulation and along kindred lines, which are for the most part new and untouched.

My own experience in this disease is limited to one case:

A. F., boy, aged 18 days, was brought to the Post-Graduate Hospital in a critical condition, having bled for six days. The infant had been delivered naturally. The cord came away on the fourth day. On the twelfth day there was hemorrhage from the unbilicus which continued, in spite of treatment, for six days. After the hemorrhage started the child became decidedly jaundiced, but there was no evidence of icterus before this time. Having experienced the usual technical difficulties which are encountered in transfusion in infants, I determined in this case to try the method suggested by Dr. Henry F. Helmholz.[4] By the syringe-cannula method blood was taken from the vein of the donor, and 35 c.c. were injected into the longitudinal sinus, through the anterior fontanel; also an intramuscular injection of 15 c.c. was given. The hemorrhage stopped immediately, and during the six days that the infant was kept under observation did not recur. There was also improvement in the general condition of the patient, the jaundice lessening to a perceptible degree. Some days after being removed from the hospital, however, the infant died suddenly. No particulars as to the cause of death could be obtained.

This case is reported to show the prompt hemostatic effect of transfusion and also to call attention to the

3. Lambert, S. W.: Med. Rec., New York, May 30, 1908.
4. Helmholz, H. F.: The Longitudinal Sinus as the Place of Preference in Infancy for Intravenous Aspirations and Injections, Including Transfusion, Am. Jour. Dis. Child., September, 1915, p. 194.

fact that the introduction of blood into the superior longitudinal sinus, through the anterior fontanel, offers an easy method of transfusion in the newly born.

(*b*) Symptomatic and Idiopathic Purpura: Purpura is usually due to some form of bacterial, metabolic or chemical toxemia. In the symptomatic variety, if the underlying etiologic factor can be determined and eliminated, the disease will tend toward a spontaneous and permanent recovery. On the other hand, idiopathic purpura or "essential thrombopeny" or "pseudohemophilia" — call it what you will — is probably a clinical entity. It is a most serious affection with a high mortality. (In fact, if all types of purpuric disease are considered, we find that the mortality is fully 25 per cent.) While it, too, is probably due to some toxic factor, the exact etiology is still undetermined. It is characterized by a tendency to uncontrollable hemorrhage. *Prolonged bleeding time, normal coagulation time, marked diminution* in the *platelet count* and lack of *capillary resistance* (Hess' test) are the essential features of the disease. Preceding and accompanying the actual bleeding there is a decided drop in the number of platelets. With improvement the platelets rapidly increase in number.

Frank cites thirty-four cases of constitutional purpura from the literature, and four of his own. He has never known of complete recovery in any case, and is inclined to believe that in most instances the supposed recovery from an acute attack was merely the subsidence into latency of a chronic purpura, which the physician happened to see during an exacerbation.

In this group there are eight cases. In seven cases, twelve transfusions were given. In addition to the transfusions, several patients were given blood intramuscularly. One patient — with streptococcic septicemia — was given intramuscular injections of blood, transfusion not seeming to be indicated. There were two deaths in the series. In the first case death was due to acute nephritis, and occurred several months after the last transfusion. The bleeding tendency had subsided long before the nephritis became the prominent feature of the disease. The second death occurred in a woman, aged 63, who had been ill for months with purpura hemorrhagica. When brought to the hospital during a fulminating attack, she was moribund. I protested against transfusing this patient, urging that it would do no good, but the attending physician insisted that the measure be tried in the forlorn hope that it might help. It did no good.

In three cases a single transfusion corrected the bleeding tendency, and apparently cured the condition. That is, up to the present time there has been no relapse. In two cases in which hemorrhage was active and life was threatened from acute anemia, transfusion tided the patients over the emergency period. The first of these patients remained well for over a year, but recently has shown a slight tendency to bleed. The second patient, after remaining without symptoms for several months, is now under my care at the hospital.

3. *Secondary Hemorrhagic Disease.*—It is probable that all types of pathologic hemorrhage, except hemophilia and possibly constitutional purpura, belong to the class of "secondary hemorrhagic disease." This term is used merely for convenience to indicate the variety of hemorrhage seen in icterus, sepsis, nephritis, blood diseases, etc. In the management of this form of bleeding, while carrying out measures for the control of the bleeding, it is imperative that the original disease be given appropriate treatment. While I have encountered a number of cases of secondary hemorrhagic disease, only two were given blood by transfusion. The first patient had chronic nephritis, with hypertension, and had been having frequent and copious nasal hemorrhages over a period of three weeks. After the transfusion there was no further bleeding, and improvement in the general condition of the patient rapidly followed. The second case was in a boy who had a severe degree of anemia and splenomegaly, with frequent small nosebleeds. After transfusion, the hemorrhages would cease until anemia again became grave. I am indebted to Dr. R. H. Halsey for a history of the first case:

Case 8.—"Mr. W. S. McL., aged 42, married, two children, has been accustomed to use alcohol to excess; tobacco in large amounts. Venereal history denied. Seen first, March 21, 1914, after a week of nosebleed, during which time some of the hemorrhages had been quite large, as judged by his brother, who is a physician, who said that probably some of the hemorrhages were as large as from 400 to 500 c.c. Repeated cauterizations and plugging of the nostrils had failed to stop the hemorrhages.

"Because of the general blanched appearance of the man, he was sent to the hospital. An examination of his blood showed an anemia of 32 per cent., with a color index of 0.5 and a red cell count of 3,144,000. The next day after his admittance to the hospital, he had joint pains and a general soreness, and a temperature of 102 F., with a pulse of 120; respirations, 22; systolic blood pressure, 190 mm.; diastolic, 110 mm. The urine showed a slight trace of albumin and a few hyaline casts. A diagnosis of influenza and chronic nephritis, with hypertension, was made. His temperature subsided and pulse rate diminished, so that five days later his temperature was 99, pulse about 100, blood pressure and urine the same as before. During this interval he continued to have numerous small nosebleeds, and he lost in the largest one probably 100 c.c. of blood. Because of the continued epistaxis, continued high blood pressure, the low hemoglobin estimation and low red cell count, which by this time had reached 2,300,000, it seemed wise to resort to a transfusion of blood. His brother was selected as the donor, and after examination as to the fitness of the choice, was found acceptable, and transfusion was done by Dr. Peterson, using the syringe method; slightly more than 300 c.c. of blood were taken.

"The examination of blood after the transfusion was completed showed that the red cells had increased about 1,000,000; hemoglobin about 5 per cent. The next day the red cell count had further increased, and though the hemoglobin percentage had somewhat diminished, the color index had increased. From that time on, the red cell count increased and the hemoglobin percentage increased, so that by the first week in May the red cell count was slightly over 3,000,000; hemoglobin, 70 per cent. The blood pressure remained about 185, with a diastolic of 135; pulse rate of 84, with a slight trace of albumin and a few hyaline casts in the urine. From the time of the transfusion there were no further nosebleeds, and up to the present time, eleven months later, there has been no recurrence.

"In this case the cessation of the nosebleeds was much more prompt, and the increase of hemoglobin percentage and red cell count were more rapid, than it has been my experience to obtain in any other similar case of chronic nephritis with hypertension, and these results would encourage me to try the procedure again under similar circumstances."

For the most part in this series the results of transfusion have been good, in but few cases ineffectual, and in none harmful. In certain instances, when the blood of one donor has proved disappointing, the selection of another donor has brought about strikingly

brilliant response. One donor's blood may exhibit remarkable powers of hemostasis, when given for the control of pathologic bleeding; another's may induce unusual hematopoietic stimulation in anemia; still another's, owing to the presence of certain ferments or antibodies, may exert real antitoxic effect under proper conditions. In the present state of our knowledge, transfusion is somewhat of a "hit or miss" game, when we consider the question of therapeutic results. Fortunately, however, when properly safeguarded by preliminary tests, and given with an understanding of indications, dosage and expected effects, the procedure is attended with a majority of "hits" and relatively few "misses." Having no means for the standardization of blood as a therapeutic agent, and administering it in the form of a "crude drug," we must expect variable results. From a practical point of view, my best clinical results have been obtained in hemorrhagic disease, when a young healthy donor, not fully matured, could be secured. Among college boys who give attention to athletic training may be found many desirable ones. In the future a qualitative, as well as a quantitative study of blood will be our guide in the selection of a donor in a given case. One whose blood is rich in platelets, both quantitatively and qualitatively, should be chosen when, for example, the intractable bleeding of hemophilia or constitutional purpura is encountered.

CONCLUSIONS

1. Transfusion of blood, intramuscular injections of whole blood, and intravenous and subcutaneous injections of homologous serum are the most efficient measures, and are of value in the order named, in the treatment of hemorrhage and the hemorrhagic diseases.

2. In severe cases of acute posthemorrhagic anemia, blood transfusion is the best, and at times the only efficient means of resuscitating a dying patient. In chronic posthemorrhagic anemia, provided the cause of the bleeding is removed or remedied, no other measure will compare in efficacy with transfused blood in producing hematopoietic stimulation.

3. In pathologic hemorrhage, transfusion of blood has on numerous occasions proved effective after the failure of all other measures. It should be resorted to, then, in those cases which do not respond promptly to the simpler methods of treatment.

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Typhoid Fever.—An epidemiologic study of the cases of typhoid fever reported in New York City during 1915, recently made by the chief of the Division of Epidemiology of the Department of Health, shows that 2,456 cases were reported. The source of 1,582 of these was unknown, but of the remaining 874, 372 were traced to out-of-town sources, 165 to direct exposure, 112 to milk, 95 to contaminated food, 118 to carriers, 12 to watermelons floating in polluted water, and none to oysters or water. A comparison of these figures with those of 1905 is interesting. In that year there were 3,585 cases reported, the source of 1,312 of which was unknown. Of the remaining 2,273, 535 were due to out-of-town sources, 225 to direct exposures, 525 to milk, 124 to oysters and 864 to water. On the accepted basis of at least ten cases for every death, it would seem that about 900 cases remained unreported to the board of health in 1915. Taking the figures of 1905, of the cases infected by milk and water, which were indirectly due to rural origin, it would be found that more than 50 per cent. of the cases reported during that year were in reality infected from rural sources.

THE ANTISEPTIC ACTION OF ETHER IN PERITONEAL INFECTIONS*

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I wish to report the clinical results obtained by the use of ether in cases of peritoneal infections.

When ether is introduced into the peritoneal cavity, it acts in both its liquid and gaseous form, for the body temperature is 2 degrees Centigrade above the boiling point of ether. Its evaporation and absorption are extremely rapid in spite of the slight check caused by the extraction of heat from the surrounding tissues and of the resistance caused by the condition of the tissues, when there are a greater or less thickness of tissue to penetrate, and a state of decomposition. Ether is first dissolved in the lymph of the tissue spaces, and afterward enters the blood circulation and is carried through to the lungs, from which its rapid elimination begins to take place in from three to four minutes after its introduction.[1]

After reading the reports made by Témoin,[2] Morestin[3] and Jeanneret[4] on the use of ether in peritoneal infections I decided to try it, and have had no reason to regret that decision. I have used it for over a year as a routine in all cases of peritoneal infections that came under my care at the Elizabeth City Hospital, and with its use I still continue the employment of proctoclysis and Fowler's position in the after-treatment. By means of a sterile small cannula attached to a record syringe containing the dose of ether, and inserted immediately before the continuous suture of the peritoneum has been tied, I instil the ether into the peritoneal cavity and then closely suture the wound in the parietes. When drainage is used I inject ether through the drainage tube and clamp it for four hours. The youngest patient in whom I used these injections was 5 years old, and the amount injected was 1 ounce. In adult cases I never inject more than 3 ounces and in only one case, in which drainage was used, I gave a second injection on the fourth day.

Such after-effects of ether anesthesia as vomiting, distention of stomach and intestines with gas, and pain in the back were not aggravated by the ether injections. In all the cases of peritoneal infections treated during the year 1915 at the Elizabeth City Hospital in which ether injections were used, no untoward after-effects and complications, such as bronchitis, pneumonia, edema of lung, acute nephritis, gastric and intestinal paralysis, and acidosis, followed, except in two cases to which I shall refer later.

I have selected five cases of appendicitis by which to demonstrate the results I have obtained from the use of ether injections. The first three cases are examples of the beneficial results I generally obtain, in which the recovery is practically uneventful. The last two cases, whose anxious condition and grave nature at the time of operation admitted of no doubt, are the only two, out of a series of 248 cases, which developed serious after-effects and complications which might be attributed to the action of an overdose of ether. In all these

* Read before the Pasquotank-Camden-Dare County Medical Society, N. C., Feb. 9, 1916.

1. Morton: Woman's Med. Jour., January, 1916.
2. Témon: Bull. et mém. Soc. de chir. de Paris, May, 1913.
3. Morestin: Bull. et mém. Soc. de chir. de Paris, February, 1913.
4. Jeanneret: Rev. méd. de la Suisse romande, 1913.

five cases, except Case 3, there was no shorter period of illness than six days before the patients were sent to hospital, and the treatment given during that time was a purgative administered by a relative and an opiate by the medical attendant. The bacteriology was not investigated in the first three cases, but in the last two cases the bacteriologic examination made of the peritoneal exudate showed the presence of streptococci and *Bacillus coli*. In all of them the intra-abdominal condition found at operation was much worse than the symptoms indicated, and necessitated a prolonged drainage except in Case 3. I learned from the history that in nearly all of these cases the classical symptoms were generally present: abdominal pain and tenderness, nausea and vomiting, elevation of temperature and quickening of pulse, and in some one symptom predominated the others. At the time of admission some of these symptoms had abated and others had increased in severity. The prominent signs and symptoms which were observed at the time of admission will be referred to under each respective case.

REPORT OF CASES

CASE 1.—J. G., a boy aged 6 years, was admitted to hospital Feb. 17, 1915. The pulse was 140, the temperature 103, and the breathing almost entirely thoracic. The abdomen was rigid, distended and tympanitic. He had frequent and painful micturition and slight diarrhea. Sandeman's sign of the child's attitude—to lie with the back of the head supported by both hands—was observed. The operation was carried out immediately after admission under open ether anesthesia, and the amount of ether used was 1½ ounces.

A gridiron incision was made, and the edges of the wound carefully protected. When the peritoneum was opened, thin seropurulent pus and offensive gas escaped. The pus which was found in the right iliac fossa, pelvis, left iliac fossa and among the coils of small intestine was mopped out, the ruptured gangrenous appendix removed, and pelvic drainage carried out by means of a rubber tube through which I injected 1 ounce of ether into the peritoneal cavity and clamped the tube for four hours. A saline was given by rectum by the drop method immediately after operation and the patient was placed in Fowler's position. As the patient did not show the desired improvement, I made on the fourth day after operation a supplementary small incision over the left iliac fossa, and after allowing the pus to escape, introduced a drainage tube through which I injected 1 ounce of ether and clamped it for four hours. The patient made a good recovery and was discharged, April 6, 1915.

CASE 2.—F. G., boy, aged 5 years, a patient of Dr. Mann of Fairfield, N. C., was a pale and thin twin, who had never been strong. At the time of admission, at midnight, July 15, 1915, his temperature was 103 and pulse 146. Physical examination revealed a mass in the right iliac fossa dull to percussion, and the right leg drawn up. Immediate operation was decided on, and was carried out under open ether anesthesia. The amount of ether used was 1½ ounces.

Through a right rectus incision the peritoneum was opened and the appendix was found to be perforated and to be lying in an abscess cavity containing about 4 ounces of foul smelling pus. The appendix was removed and the cavity drained, and through the drainage tube 1 ounce of ether was injected and the tube clamped for four hours. For a few days the boy suffered from diarrhea and mucus, and undigested food appeared in the motions; then he made a good recovery and was discharged, Aug. 10, 1915.

CASE 3.—C. N., aged 27 years, a strong and healthy looking farmer, complained of indigestion and epigastric pain, Sept. 14, 1915, the day he brought his wife to the hospital to undergo an operation for appendicitis. On the following day, while on a visit to the hospital to see his wife, he told me that the attacks of pain over the middle of his abdomen, above the navel, were so severe as to compel him to rest awhile when working or walking, that he had taken a purgative, had applied a blister over his stomach and had obtained no relief, and wished me to examine him.

There was a slight elevation of temperature with slight quickening of the pulse, and local deep tenderness in the right iliac fossa was elicited, but no rigidity. I made a diagnosis of appendicitis and advised operation. It was carried out under open ether anesthesia. The amount of ether used was 6 ounces. The right rectus incision was adopted. The appendix, black, shiny and gangrenous, was found lying free without adhesions and with no perforation. It was removed and its lumen was found to be obstructed by two hard calculi, one at the base and one near the tip. Three ounces of ether were instilled into the peritoneal cavity and the wound closed without drainage. An uneventful recovery followed.

CASE 4.—L. H., boy, aged 9 years, referred by Dr. W. T. Griggs of Poplar Branch, N. C., was admitted to hospital, July 20, 1915. He looked very ill. The temperature was 103, the pulse 144, and there was practically no abdominal respiratory movement. On the strength of the history, the pulse rate and the abdominal rigidity, I opened the abdomen under open ether anesthesia. The amount of ether used was 2 ounces. A ruptured gangrenous appendix was found surrounded by a collection of seropurulent and fecal fluid, a perforation of the cecum at its junction with the appendix—as large as a dollar—and a spreading peritonitis. The pus and foreign material were mopped away, the appendix removed, the perforation in the cecum closed by through and through and Lembert sutures, and through an established tube in the pelvis I injected 1 ounce of ether and clamped the tube for four hours. At the end of the operation and before leaving the table the patient turned suddenly pale and frothed at the mouth. His pulse became thready and rapid, his breathing slow and shallow, his eyes glassy and fixed and his extremities cold. Saline infusion subcutaneously, and strychnin, 1/60 grain, and digitalin, 1/75 grain, hypodermically, were administered. The patient after two hours recovered from this condition and was put to bed in Fowler's position. The second day after operation his temperature rose to 104.6 and respiration to 40 per minute. On the third day he developed signs of basal pneumonia.

The points to be considered in this case are, first, Was the shock due to an overdose of ether, and, second, What was the cause of pneumonia? As I am not a believer in dogmatism, I call attention to the small amount of ether used—for inhalation 2 ounces and for instillation into the peritoneum 1 ounce, which passed through the lungs as a warm and moistened vapor—and to the low and toxic condition of the patient. The boy had no bad teeth, his mouth was cleansed, the ether mask was sterile, and his body was kept warm before, during and after the operation. The reader can use his own judgment as to whether ether, or septic infection, or both combined, was the injurious agent. However, in spite of such dangerous intra-abdominal pathologic condition and of such a perilous complication as pneumonia, the patient slowly recovered, and after a prolonged convalescence was discharged, Sept. 2, 1915.

CASE 5.—T. H., aged 42 years, farmer, a patient of Dr. Davis of Weeksville, N. C., had had two attacks of appendicitis previous to the night of Aug. 16, 1915, when Dr. O. McMullan was called in consultation and ordered his immediate removal to hospital. So much care was taken in carrying him to the hospital that it took from 12 midnight to 5 a. m., to travel a distance of 12 miles. On admission his temperature was 102, pulse 120 and respiration 42. He was pale, thin, emaciated and looked extremely ill. Physical examination revealed tenderness, muscular rigidity and swelling, with a tympanitic note on percussion in the right iliac fossa. The operation was carried out under open ether anesthesia. The amount of ether used was 4 ounces. A hypodermic injection of morphin, ¼ grain, atropin, 1/120 grain, and scopolamin, 1/100 grain, was given one and one-half hours previous to the operation.

When the abdomen was opened by the gridiron incision, a matted mass was found consisting of cecum, ileum and omentum enclosing a thin and extremely offensive fluid and

a long appendix, adherent near its base to the ileum, its body coiled behind the cecum and embedded in its wall and its tip gangrenous and perforated. The cecum was distended with gas, and on its posterior surface purplish areas were observed. The fluid was mopped, and the appendix with difficulty and after prolonged manipulation was separated and removed. The wound was closed and drainage used by means of a rubber tube, through which 3 ounces of ether were instilled into the peritoneal cavity, and the tube clamped. A quarter of an hour after leaving the operating table the patient became cyanosed; the pulse was thready and imperceptible, the respiration slow and shallow; the eyes were lusterless and the pupils moderately dilated; the general reflexes and resistance were lost; unconsciousness was complete. Caffein and atropin hypodermically and hot saline by rectum were administered. After two hours a slight improvement in the pulse was observed, and the cyanosis began to disappear gradually; but it was twelve hours before the reflexes and consciousness were restored. It is possible that the severe shock in this case was not due solely to ether, and probably to combined causes in which the prolonged abdominal manipulation and the septic infection were contributory factors. It was a great relief to me to feel that though death was nigh it was robbed of its fatal sting, and the patient after a slow and tedious recovery was able to leave the hospital in good health, Oct. 3, 1915.

CONCLUSIONS

1. Ether experimentally and clinically has been proved to have a bactericidal action.

2. In peritoneal infections it is a safe and beneficial antiseptic.

3. The dose of ether instillation into the peritoneal cavity is 1 ounce for a child above 4 years, and 3 ounces for an adult.

4. Generally no untoward after-effects and complications follow its use.

5. Any possible toxic action of ether on the various body organs is very slight.

THE DIAGNOSIS OF ENTERIC FEVER (TYPHOID AND PARATYPHOID A AND B) BY AGGLUTINATION TESTS*

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Dr. C. D. Hamilton[1] has asserted that "a positive Widal reaction in any person who has ever been inoculated with the antityphoid vaccine is of no value in diagnosing typhoid fever. The only reliable way of ascertaining the cause of continued fever when typhoid is suspected is by the blood culture and a total and differential leukocyte count."

This statement doubtless accurately represents the facts regarding the results of single Widal tests carried out by the older methods. Nevertheless the agglutination test when quantitatively performed by an accurate technic[2] can undoubtedly be made to give as valuable results in inoculated as in uninoculated persons; for although it is true that a single positive Widal reaction, even when done quantitatively, in the case of a person suspected of typhoid fever who has previously been inoculated with typhoid vaccine, may be of no value, yet by recording the highest dilution in which marked agglutination occurs (that is, the titer of agglutination of the serum) and repeating this quantitative determination once or twice at intervals of several days, one can readily arrive at a correct diagnosis by noting whether or not any appreciable alteration occurs in the titer of the serum at the successive examinations (that is, noting whether the agglutinating power of the serum has risen or fallen during the period of observation). For one can state with confidence that if either a marked rise or a marked fall in the agglutination titer has taken place, the person is suffering from active typhoid infection, since it has been shown[3] that in active typhoid infections the agglutination titer of the serum increases for about the first three weeks (Dreyer), after which it falls, at first rapidly and then much more gradually toward its original level. The rate of fall progressively diminishes, so that after about two months, successive observations made at short intervals will probably exhibit no appreciable change.

The agglutination technic by means of which this accurate analysis has been rendered possible is the quantitative macroscopic method introduced by Dreyer[2] in 1904, of which the brief description issued from this Department is appended:

DIRECTIONS

USE OF STANDARD AGGLUTINABLE CULTURES IN TESTING THE AGGLUTINATING POWER OF A SERUM

1. TECHNIC.

Take a stand containing 15 agglutination tubes in 3 rows of 5 each, and a dilution tube.

With the proper dropping pipet measure out into the dilution tube 54 drops of normal saline solution, 0.85 per cent. sodium chlorid, in distilled water (where the water supply is pure, tap-water can be used instead of saline solution) by means of gentle pressure on the teat.

Wash the pipet with distilled water.

Dry out the pipet with successive quantities of absolute alcohol, followed by successive quantities of ether, and get rid of the ether.

Take up the serum to be tested into the dried pipet. Measure out 6 drops of the serum into the dilution tube already containing the 54 drops of saline solution, thus obtaining a dilution of 1 in 10. Mix thoroughly.

Carefully wash out the pipet.

With the pipet measure out into each row of tubes as follows:

Number of Tube	Drops of Normal Saline Solution	Drops of Serum Dilution 1 in 10	
1	0	10	To each tube in row 1 add 15 drops of *B. typhosus* Standard Agglutinable Culture.
2	5	5	
3	8	2	To each tube in row 2 add 15 drops of *B. paratyphosus A* Standard Agglutinable Culture.
4	9	1	To each tube in row 3 add 15 drops of *B. paratyphosus B* Standard Agglutinable Culture.
5	10	0	

At each stage of the procedure the pipet is carefully washed and dried out with successive quantities of absolute alcohol followed by successive quantities of ether.

Shake each tube thoroughly in order from right to left, i. e., beginning each row with the highest dilution.

Place the stand for two hours in a water-bath at 50-55 C. (*not* in dry air).

In Tube 1 of each row the serum acts in a dilution of 1 in 25.
In Tube 2 of each row the serum acts in a dilution of 1 in 50.
In Tube 3 of each row the serum acts in a dilution of 1 in 125.
In Tube 4 of each row the serum acts in a dilution of 1 in 250.
Tube 5 containing no serum is control against spontaneous agglutination.

If the limit of agglutination is not reached within this series, higher dilutions are followed out in a similar manner.

Thus, for example, 57 drops of normal saline solution plus 3 drops of a 1 in 10 serum dilution will give a serum dilution of 1 in 200, and, using the same quantities as before, one has the serum acting in dilutions of 1 in 500, 1 in 1,000, 1 in 2,500 and 1 in 5,000. And similarly for higher dilutions.

The tubes are examined after 2 hours at 50-55 C. followed by fifteen minutes standing at room temperature. The reading is taken by comparing each tube in succession with the control tube, and is preferably made by means of artificial light against a black background. If daylight is used, the tubes inspected should be partly shadowed by passing a finger up and down behind them.

The highest dilution in which marked agglutination (without sedimentation) can be detected by the naked eye is *Standard Agglutination*. But owing to the rate at which the dilution increases in the series of tubes employed, it will commonly happen that no tube in the series exhibits *Standard Agglutination*. If this be so, it will be found in looking along the series that while one tube shows strong agglutination

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* From the Department of Pathology, University of Oxford.

1. Hamilton, C. D.: The Effect of Typhoid Vaccination on the Widal Reaction, THE JOURNAL A. M. A., Nov. 27, 1915, p. 1873.

2. Dreyer, Georges: Hospitalstidende, 1906; Brit. Med. Jour., 1904, ii, 564. Dreyer and Blake, Jex: Jour. Path. and Bacteriol., 1906, p. 1. Dreyer: Proc. Roy. Soc. Med., 1915, ix (Medical Section), p. 9. Dreyer and Torrens: Lancet, London, Dec. 18, 1915, p. 1369.

3. Schroeder, K.: Thesis, Copenhagen, 1909.

with sedimentation the next succeeding tube shows no agglutination at all, or only a trace. In such cases Standard Agglutination lies approximately midway between the two dilutions.

Should a more precise determination of the limits of agglutination be required, it can be obtained by using a stand of twelve tubes with the series of quantities given in the table contained in the directions for Preparation and Standardization of Agglutinable Cultures.

If the stand is left at the room temperature, sixteen to twenty-four hours must be allowed before the reading is taken, but the reaction is not then so sharply defined. In this case the highest dilution in which a definite flocculent sedimentation appears corresponds approximately to Standard Agglutination.)

When the standard degree of agglutination (*"Standard Agglutination"*) occurs with Standard Agglutinable Culture in a serum dilution of 1 in x, then x divided by the figure given on the label of the Standard Aggluinable Culture employed gives the number of *"Standard Agglutinin Units"* contained in 1 c.c. of the serum examined.

Note.—The *Standard Agglutinin Unit* is that amount of agglutinating serum which when made up to 1 c.c. volume with normal saline solution causes Standard Agglutination on being mixed with 1.5 c.c. of a particular Standard Agglutinable Culture and maintained at 55 C. for two hours in a water-bath followed by fifteen minutes at the room temperature.

Thus, if standard agglutination occurs in a dilution of 1 in 1,000, and the number on the label is 2.5, then $\frac{1,000}{2.5}$, i. e., 400, is the number of Standard Agglutinin Units contained in 1 c.c. of the serum examined.

For uniformity and simplicity in recording results they should be expressed in *Standard Agglutinin Units.*

2. DIAGNOSIS.

A. In noninoculated persons who have not had typhoid (or paratyphoid) fever, agglutination in a dilution of 1 in 25 justifies a strong suspicion of typhoid (or paratyphoid) infection. But the test must be applied again in the course of a few days to ascertain whether there is any change in the titer of agglutination. Marked agglutination in a dilution of 1 in 50 or more is (nearly always) diagnostic of active typhoid (or paratyphoid) infection.

A *noninoculated* "carrier" will normally show no important change in the titer of his serum on repeated examination at short intervals.

B. Inoculated persons if quite recently inoculated will usually show a high titer of specific agglutination. A rapid rise in titer sets in within two to four days of inoculation. This is followed by a fall at first rapid, but subsequently becoming very slow, so that a relatively high titer is maintained for a long period (even for years). During this period examinations made at intervals of a few days give practically identical readings.

It follows that in the case of inoculated persons the diagnosis of active typhoid (or paratyphoid) infection will require two or more successive examinations of the serum.

(*a*) If the individual is suffering from active *typhoid* infection his titer of typhoid agglutination will exhibit the usual rise and subsequent regular fall seen in noninoculated subjects, but starting from and returning toward the higher base line of inoculated persons.

(*b*) If the individual is suffering from active *paratyphoid* infection one of three things may occur as regards his *typhoid* agglutination titer, namely:

1. No appreciable change may occur in the titer of typhoid agglutination.
2. A relatively slight rise may occur, followed by a fall toward the former level.
3. A marked rise may occur synchronous with the rise in paratyphoid agglutination titer, and subsequently followed by the usual fall toward the former level.

Meanwhile the titer of *paratyphoid* agglutination runs the normal course of rapid rise to a maximum (usually exceeding the maximum typhoid titer) followed by a fall, at first rapid and then slower as already described for typhoid subjects, and falling *below* the persistent base line of typhoid agglutination of inoculated persons.

C. In the case of mixed infections, whether in inoculated or non-inoculated persons, the agglutinin curves for the different infecting organisms are usually not synchronous, and they pursue their ordinary course independently of each other.

From the Department of Pathology, University of Oxford, on behalf of the Medical Research Committee.

In Great Britain and Denmark this technic has now very largely superseded the older microscopic method on which Dr. Hamilton relies but whose fallacies have been often demonstrated.[4] Its application and the use of the standardized agglutinable cultures[5] which have been issued since July, 1915, on behalf of the Medical Research Committee (England) to British military and naval hospitals, have rendered it a simple matter to determine accurately the degree to which the serum of any given individual will agglutinate the *Bacillus typhosus* or the paratyphoid bacilli. A description of the mode of preparation and standardization of these cultures is sent out from the Oxford Laboratory in the form appended:

DIRECTIONS

PREPARATION AND STANDARDIZATION OF AGGLUTINABLE CULTURES

1. PREPARATION.

The bacillus (*B. typhosus, B. paratyphosus,* etc.) is grown for twenty-four hours at 37 C. in ordinary *veal* peptone bouillon in large Erlenmeyer flasks partly filled (1 liter of bouillon in a 1½ liter flask).

The bouillon is titrated against phenolphthalein, and two thirds of that amount of sodium hydrate which would render it neutral to phenolphthalein is added before the final boiling and filtration.

Before use the flasks of bouillon are sterilized in the autoclave at 115 C. for *not more* than fifteen minutes, and are then tested for sterility by incubation at 37 C. for forty-eight hours.

They are inoculated with a few drops each from a twenty to twenty-four hours old bouillon culture of the bacillus (*B. typhosus* or *B. paratyphosus,* etc.).

The culture used should be one which has been subcultivated daily in bouillon for one or two weeks (or longer). This continued subcultivation has the effect of increasing its agglutinability and diminishing any tendency to spontaneous agglutination.

At the end of twenty to twenty-four hours' growth at 37 C., the flasks are well shaken, and to each is added 0.1 per cent. (1 c.c. per liter) of commercial (40 per cent.) liquor formaldehydi. They are again shaken and placed in a *cold* chamber in the dark at about 2 C.

At intervals on the same day and on subsequent days for four or five days the flasks are again thoroughly shaken and *replaced at once in the cold chamber.*

After three or four days they will be found to be absolutely sterilized. Should it happen that the bacterial suspension is not entirely homogeneous it may be shaken for some hours in a mechanical shaker, or may finally be filtered through sterile cotton-wool.

2. STANDARDIZATION.

The process of standardization consists (*a*) in making up the killed culture to an opacity as nearly as possible identical with that of the Standard Agglutinable Culture, (*b*) in measuring its agglutinability as compared with the Standard Agglutinable Culture by the use of Standard Serum.

(*a*) The killed culture is diluted to the required degree with normal saline solution to which has been added 0.1 per cent. of commercial liquor formaldehydi.

In making up the Standard Agglutinable Culture issued a constant opacity is secured by the use of a special apparatus (the diaphanometer). But for ordinary purposes it will be found that reasonable accuracy is obtained by putting a measured quantity of killed culture and of Standard Agglutinable Culture in two tubes of equal size and diameter and comparing the opacity against thin black lines ruled on a white background. Diluting fluid is added until the opacity of the killed culture is brought down to that of the Standard Agglutinable Culture. The quantity of fluid thus added being known, the amount of diluting fluid which much be added to the killed cultures is readily calculated.

(*b*) To measure the agglutinability of the killed culture thus diluted, proceed as follows:

Take two stands and place twelve agglutination tubes in each. Prepare (1) a dilution of Standard Agglutinating Serum of such strength that each cubic centimeter contains from 4 to 8 Standard Agglutinin Units, and from this prepare (2) a second dilution of half that strength.

With the pipet measure out

	Drops of Normal Saline Solution	Serum Dilution	
Into tube 1 of each stand	0	10 drops of dilution 1	To each tube of one stand is added 15 drops of *Standard Agglutinable Culture,* and to each tube of the other stand 15 drops of the *killed culture* under standardization.
" 2 "	2	8 "	
" 3 "	4	6 "	
" 4 "	5	5 "	
" 5 "	6	4 "	
" 6 "	3	7 drops of dilution 2	
" 7 "	4	6 "	
" 8 "	5	5 "	
" 9 "	6	4 "	
" 10 "	7	3 "	
" 11 "	8	2 "	
" 12 "	10	0 "	

At each stage of the procedure the pipet is carefully washed and dried out with successive quantities of absolute alcohol followed by successive quantities of ether.

The stands are placed for two hours in a water bath at 50-55 C., then allowed to stand for fifteen minutes at room temperature and a reading subsequently taken by selecting in the series made with Standard Agglutinable Culture the tube which exhibits Standard Agglutination (the highest dilution in which marked agglutination, without sedimentation, can be detected by the naked eye), and ascertaining which tube in the other series shows the same degree of agglutination. Should the tube be the same in each series, the agglutinability of the killed culture is clearly equal to that of the Standard. If not the same, the degree of agglutinability of the killed culture is now readily determined.

Thus suppose that tube 5 in the Standard series corresponds to tube 2 in the other series. The Standard Agglutinable Culture is twice as agglutinable as the killed culture under standardization, since only half the quantity of serum has been required to agglutinate it to the same degree.

Hence, if any given serum presented for examination is found to agglutinate this particular killed culture in a dilution of, say, 1 in 500, then 500 multiplied by 2 and divided by the figure given on the label of the Standard Agglutinable Culture is the number of Standard Agglutinin Units in 1 c.c. of the serum examined.

Or again, if the killed culture were, say, 1.3 times as agglutinable as the Standard Agglutinable Culture, then in the same example as above, 500 divided by 1.3 and again divided by the figure given on the label of the Standard Agglutinable Culture is the number of Standard Agglutinin Units in 1 c.c. of the serum examined.

From the Department of Pathology, University of Oxford, on behalf of the Medical Research Committee.

As a matter of routine, quantitative agglutination tests are made simultaneously against *B. typhosus, B. paratyphosus* A and *B. paratyphosus* B, and the highest dilutions in which marked agglutination without sedimentation occurs are recorded. Since, wherever typhoid inoculation has been made a routine practice, it is found that about 99 per cent. of the inoculated individuals give a positive Widal reaction against *B. typhosus* for at least a year, it may be stated that if in addition to the positive Widal for typhoid there

4. Walker, Ainley E. W.: Lancet, London, Jan. 1, 1916, p. 17.

5. Dreyer, Georges: Widal's Reaction with Sterilized Cultures, Jour. Path. and Bacteriol., 1909, xiii, 332.

is a positive agglutination reaction for either of the paratyphoid organisms, the case is an active paratyphoid infection (Table 1), provided, of course, the patient has not also been inoculated with paratyphoid vaccine in addition to the typhoid vaccine. If there is positive typhoid agglutination alone and no agglutination in a dilution above 1:10 with paratyphoids, a second specimen of blood must be taken four or five days later and the test repeated. If the highest dilution in which marked typhoid agglutination occurs on the second occasion is approximately the same as that found on the first occasion, and there is still no agglutination for either of the paratyphoids, the case is not one of typhoid fever and the agglutination is due to the typhoid inoculation alone (Table 2). For it has been shown that after about the third month of antityphoid inoculation, the titer of the agglutination due to inoculation is practically stationary if examined at intervals of only a few days, and that tests made at intervals of even weeks will show only a small gradual decrease in titer.[6] If, on the other hand, the highest dilution of marked typhoid agglutination in the second test is either markedly higher or markedly lower than at the first examination, one can state that the case is one of active infection with *B. typhosus* (Table 3).

The cases given in Tables 2 and 3 serve to illustrate these points. The patient shown in Table 2 was a case of suspected enteric fever. He had been prophylactically inoculated with typhoid vaccine six months previously. A specimen of blood was taken and a quantitative agglutination test was done by Dreyer's technic and marked agglutination for typhoid was found to occur up to a dilution of 1:250, and no agglutination for paratyphoid A or B was found. A second specimen of blood was tested after an interval of five days and a third specimen after ten days, and no change was found on any occasion. Accordingly, this case was not a case of typhoid fever, and the positive typhoid agglutination was due solely to the prophylactic typhoid inoculation.

Table 3 shows a case of continued fever in a person who had been inoculated with typhoid vaccine six months previously. The first agglutination examination showed a marked positive typhoid agglutination up to a dilution of 1:2,500, and no agglutination for paratyphoid A or B. A second agglutination test made five days later showed marked agglutination for *B. typhosus* up to a dilution of 1:1,250, and again no agglutination for paratyphoid A or B. A third examination made ten days later showed that the highest dilution of marked typhoid agglutination was only 1:500, and there was still no agglutination for para-

TABLE 1.—RESULTS OF AGGLUTINATION TESTS IN PARATYPHOID A AND B IN TYPHOID INOCULATED PATIENTS

Case No.	Date of Typhoid Inoculation	Date of Agglutination Test	Dilution in Which Marked Agglutination Occurs		
			Typhoid	Paratyphoid A	Paratyphoid B
19	May, 1915, twice	Sept. 6, 1915	1:250	0	1:2,500
89	November, 1914, and May, 1915	Sept. 9, 1915	1:250	1:500	0

TABLE 2.—RESULTS OF AGGLUTINATION TESTS IN SUSPECTED ENTERIC FEVER

Case No.	Date of Typhoid Inoculation	Date of Agglutination Test	Dilution in Which Marked Agglutination Occurs		
			Typhoid	Paratyphoid A	Paratyphoid B
66	March, 1914, twice	Sept. 22, 1915	1:250	0	0
		Sept. 27, 1915	1:250	0	0
		Oct. 7, 1915	1:250	0	0

TABLE 3.—RESULTS OF AGGLUTINATION TESTS IN ACTIVE INFECTION WITH BACILLUS TYPHOSUS

Case No.	Date of Typhoid Inoculation	Date of Agglutination Test	Dilution in Which Marked Agglutination Occurs		
			Typhoid	Paratyphoid A	Paratyphoid B
60	May, 1915, twice	Sept. 22, 1915	1:2,500	0	0
		Sept. 27, 1915	1:1,250	0	0
		Oct. 7, 1915	1:500	0	0

TABLE 4.—RESULTS OF AGGLUTINATION TESTS IN SUSPECTED TYPHOID IN AN UNINOCULATED PERSON

Case No.	Date of Typhoid Inoculation	Date of Agglutination Test	Dilution in Which Marked Agglutination Occurs		
			Typhoid	Paratyphoid A	Paratyphoid B
157	Not inoculated	Feb. 28, 1916	1:100	0	0
		March 12, 1916	1:500	0	0

6. Dreyer and Walker: Jour. Path. and Bacteriol., 1909, xiv, 28; Lancet, London, Feb. 13, 1915, p. 324.

typhoid A or B. Therefore this was a case of active infection by the *B. typhosus*.

Cases of *B. typhosus* infection in recently inoculated persons are, of course, infrequent, and it happens that among those which I have myself observed there is none which was examined at a sufficiently early stage of the disease to show the marked rise of agglutination titer which is diagnostic about the first three weeks of typhoid infection; but Table 4 shows a case of an uninoculated person suspected of typhoid fever whose serum, when tested seven days after the onset of the fever, agglutinated *B. typhosus* up to a dilution of 1:100. Thirteen days later the agglutination titer had risen to 1:500. In typhoid inoculated persons, who become infected with *B. typhosus*, a similar sharp rise is found, only, the rise starts not from zero, but from the level of the agglutination titer due to the previous inoculation.

Table 1 shows a case of paratyphoid A fever, and a case of paratyphoid B fever in typhoid inoculated patients.

From these examples, which have been chosen for illustration, it can be seen that the agglutination test when carried out by an accurate quantitative technic remains the most reliable and satisfactory method which we have at hand for the diagnosis of the enteric fevers (typhoid and paratyphoid A and B), whether the individual has or has not received prophylactic typhoid inoculation.

THE TREATMENT OF HUMAN RABIES WITH QUININ AND WITH PHENOL

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Since the preventive treatment of persons bitten by rabid animals has come to be widely practiced, human rabies is a rare disease. In New York City, a few cases occur every year (in 1911 there were eleven cases; in 1912, six cases; in 1913 and 1914 eight cases each, and in 1915, one case).

Most of the persons who develop rabies have received no preventive inoculations. Occasionally the disease occurs in spite of such treatment, the gross incidence among many thousands of persons treated by different antirabic institutes averaging about 0.5 per cent.

So far as we positively know, rabies once developed is always fatal. In the few cases of recovery that have been reported, the diagnosis has been open to serious doubt. Attention has been centered on the prevention of the disease by one or other of the accepted methods (Pasteur, Högyes, Harris or Cumming), and very little effort has been made to find a specific treatment of developed rabies. Yet in view of the facts that the balance of evidence leans toward the protozoan nature of this disease, and that certain protozoan infections are amenable to cure by specific drugs, it would seem worth while not to abandon hope of finding a drug that would kill the parasite in vivo without harm to the patient.

In 1913, Moon[1] reported the recovery of three dogs treated with massive doses of quinin after the development of symptoms of rabies. Cumming,[2] and Frothingham and Halliday,[3] using rabbits, failed to confirm Moon's results. Krumweide and Mann[4] found that quinin had no effect in shortening the incubation of rabies in rabbits. Of four dogs inoculated intracerebrally with rabies virus and subsequently treated with quinin by mouth and subcutaneously, one showed a prolonged period of incubation and one a remission in the symptoms, in each case, however, not beyond the limits of variations known to occur in the natural course of the disease. The dogs all died clinically rabid, their brains showed Negri bodies, and guineapigs inoculated subdurally from them all died of rabies and also showed Negri bodies.

Although these experiments failed to confirm the results reported by Moon, I decided to try the quinin treatment in a human case at the first opportunity.

TREATMENT OF HUMAN RABIES WITH QUININ

In October, 1913, D. L. Harris[5] reported the case of a man who showed symptoms strongly resembling rabies, and who was treated with quinin and urea hydrochlorid, receiving 90 grains intravenously with prompt recovery. A careful reading of this report leads to the suspicion that this man did not have rabies, for the following reasons among others: There was no evidence that the dog that bit him was rabid; the man managed to drink enough whisky to get intoxicated before he entered the hospital for treatment, and his symptoms improved too rapidly. Two and one-half hours after treatment was begun, when he had had but two intravenous injections of 15 grains each, he drank 6 ounces of milk without difficulty. Later that night and on the following day, he could eat and drink, and his recovery was complete within a day or two. On the other hand, the patient's symptoms as described were so characteristic that, had he died, one would have felt certain that rabies was the cause of death, even in the absence of postmortem confirmation.

On Oct. 26, 1913, two days following the publication of Harris' report, an opportunity of trying the quinin treatment in an undoubted case of human rabies presented itself.

CASE 1.—A. A., a boy aged 7, was bitten rather deeply on the index finger, Oct. 4, 1913. The wound was improperly cauterized at a dispensary with silver nitrate. The dog was killed, and examination of the brain at the research laboratory of the New York department of health showed the presence of Negri bodies. Three days later the patient appeared at the antirabic clinic of the department of health, and the Pasteur treatment was begun under my direction. The child was irregular in attendance and received only fourteen treatments in eighteen days, the last one on October 24.

Symptoms of rabies began on October 25, and he remained at home. No report of his illness was made to the clinic. On the following afternoon he was taken to Bellevue Hospital, where the diagnosis of rabies was made. On the morning of October 27, I was notified by the house physician, who had just read Harris' article. Although the boy had then been ill for forty-eight hours, it was determined to try the quinin treatment. At this time all the classical symptoms of the disease were present: extreme nervousness, complete inability to swallow fluids and great fear of attempting to do so, clonic spasms of the muscles of the throat and face and occasional general convulsions.

At 11 a. m., 10 grains of quinin and urea hydrochlorid were given intravenously in 10 c.c. of sterile water. Three hours later, lumbar puncture was performed, clear fluid with-

1. Moon: Jour. Infect. Dis., 1913, xiii, 165.
2. Cumming: Jour. Infect. Dis., 1914, xv, 205.
3. Frothingham and Halliday: Jour. Med. Research, 1914, xxx, 275.
4. Krumweide and Mann: Jour. Infect. Dis., 1915, xvi, No. 1.
5. Harris, D. L.: A Clinical Report of Seven Cases of Hydrophobia, THE JOURNAL A. M. A., Oct. 25, 1913, p. 1511.

drawn, and 7 grains of quinin were given intraspinally. This was followed by an alarming collapse which lasted about two hours. Later in the afternoon another dose of 10 grains was given intravenously. The drug had no apparent effect on the symptoms of the disease, which proceeded as usual, through convulsions and paralysis to death from exhaustion on the morning of October 28, three days after the onset of the symptoms and less than twenty-four hours after the quinin treatment was begun. Necropsy showed Negri bodies in the brain; guinea-pigs inoculated subdurally with the brain material developed rabies, and Negri bodies were found in their brains.

It was felt that this case was not a fair test of the value of quinin in rabies because the treatment was begun so late in the disease.

CASE 2.—During the spring of 1914, I was called to see a woman in the Polyclinic Hospital who presented symptoms very suggestive of rabies. The patient, a young cabaret singer, said she had been bitten by her own dog five weeks before at a time when the animal was sick. She had given the dog away immediately after being bitten, and did not know its subsequent history. She appeared at the throat clinic of the hospital complaining of spasms of the throat and inability to swallow.

On examination several hours later, she presented a very fair clinical picture of rabies: abundant ropy saliva, convulsive movements of the throat and head, marked hydrophobia and total inability to swallow anything. Examination of the throat, made with difficulty, disclosed only congestion of the fauces, pharynx and larynx. She was extremely nervous and excited.

Although I suspected hysteria, the symptoms were so nearly typical of rabies that it was decided to administer quinin. Ten grains of quinin and urea hydrochlorid were given intravenously at 5 p. m. When seen three hours later, she was so much better that no more quinin was given, and a positive diagnosis of hysteria was made. One of the ambulance surgeons thought he recognized the woman, and a search of the ambulance records disclosed the fact that she had been brought into the hospital three times before with different manifestations of hysteria. She was discharged the next day, cured.

This case appears to be somewhat similar to the one reported by Harris, and is cited to show how closely hysteria or some other psychosis may simulate true rabies.

CASE 3.—In this case, the quinin treatment was fully tried out but failed to save the patient's life. Grace P., aged 13, residing in Brooklyn, was bitten on the right wrist by a cat, Oct. 19, 1913. The wound, which was a slight one, was treated at once with tincture of iodin by the family physician, Dr. T. L. Vosseler. The cat was killed and its brain examined at the research laboratory and Negri bodies were found. October 20, the wound was recauterized at the laboratory with pure nitric acid, and Pasteur treatment, supplied by the department of health, was given daily by Dr. Vosseler for twenty-one days. The patient and her family denied any history of bites from animals or any other opportunity for rabic infection between this time and the date of the development of rabies, which occurred one year after the completion of the Pasteur treatment.

On Nov. 1, 1914, the child complained of pain in the right wrist. This lasted four days, extending from fingers to shoulder, and then subsided. During the night of November 7, following an afternoon of very active play, she began to have pharyngeal and laryngeal spasms, with some difficulty in swallowing. The next noon Dr. Vosseler was called and, finding the foregoing symptoms more pronounced, made a diagnosis of rabies. Dr. Frederick Tilney was called in consultation at 8 p. m., and confirmed the diagnosis. Later that evening I was summoned and saw the patient with Drs. Vosseler, Tilney and Thunig. The child then complained chiefly of difficulty in breathing. She was unable to swallow water, and spasms of the throat and face muscles were easily elicited by blowing a puff of cool air on the face.

It was decided to administer quinin in massive doses, beginning with an intraspinal injection. The risk of this method was fully explanied to the parents and accepted by them. At 1 a. m., November 9, 20 grains of quinin and urea hydrochlorid in 10 c.c. of boiled water were given intraspinally by Dr. Tilney after removing 18 c.c. of clear cerebrospinal fluid, which was saved for laboratory tests.

Within ten minutes the child complained that she could not move her lower limbs. She soon stopped breathing and paralysis of all the muscles of the body except those supplied by the cranial nerves occurred. For a few minutes the heart action was weak, and the child appeared about to die. The heart was stimulated, and the head of the bed raised to keep the quinin, so far as possible, in the lower part of the canal. Artificial respiration was performed for about an hour until a pulmotor could be procured, which soon (in nine minutes) restored voluntary breathing. Consciousness was retained throughout, but the child could not speak. By 3 a. m., ability to speak and to move the muscles of the arm and trunk had returned. Complete motor and nearly complete sensory paralysis of the lower extremities persisted until death.

It was evidently too dangerous to give further intraspinal injections, and the remaining doses of quinin were given intravenously as follows: November 9, 5 a. m., 20 grains; 10 a. m., 20 grains; 2 p. m., 20 grains. November 10, 1 a. m., 20 grains; 12 m., 15 grains; 5 p. m., 20 grains. November 11, 11 a. m., 20 grains; 5 p. m., 20 grains. November 12, 1 a. m., 20 grains.

Thus, a total quantity of 195 grains was given in seventy-two hours, in ten doses. The intraspinal dose was dissolved in 10 c.c. of boiled water, the first five intravenous doses in from 6 to 9 c.c., and the last four in 12 c.c. of normal salt solution. Owing to the local irritation caused by the quinin, the injection had to be given in a new place each time, and all available veins of the upper and lower limbs were used.

Without describing the symptoms in too great detail, it may be stated that the only beneficial effects of the quinin seemed to be a reduction in the amount of conscious suffering, and probably some prolongation of the course of the disease, since the child lived six days. On November 9, there were convulsions of the face, head and upper extremities, and later in the day a few general convulsions, but these were not so severe as are usually seen in rabies. Owing to the paralysis of the lower extremities caused by the intraspinal dose of quinin, there were no convulsions below the waistline at any time. On the 10th, from 2 a. m. until noon, there were severe throat spasms, general convulsions and active delirium at times. The child could not swallow either liquids or solids, except on the 12th, when she took 6 ounces of water with difficulty. From November 11 on, she could not see, and on the 12th she became comatose, after which the spasms of throat, face and arms became less frequent and less severe. Some of the injections of quinin were followed by a marked reduction in the frequency and force of the heart action. On November 11, the leukocytes were 35,000 with 86 per cent. polymorphonuclears; on the 13th, 13,500. The urine was drawn by catheter, and on the day of death it contained 25 per cent. albumin by volume and gave a prompt Fehling reaction for sugar.

Aside from the injections of quinin, the treatment consisted in sedatives, enteroclyses, hypodermoclyses, rectal feeding and cardiac stimulation by epinephrin hypodermically.

Gradually the patient's strength became exhausted, and finally death occurred suddenly from respiratory paralysis on the evening of November 13, six days after the onset of the symptoms. Necropsy was performed on November 14. Negri bodies were found in the brain, and guinea-pigs inoculated subdurally from this developed rabies in two weeks, and Negri bodies were found in their brains. Guinea-pigs inoculated subdurally with the cerebrospinal fluid did not develop rabies, thus confirming the customary experience that the spinal fluid of persons suffering from rabies is usually not infective.

This case seems to show that the administration of quinin intraspinally is extremely dangerous, that it is fairly well borne intravenously, but that not much can be expected of it in rabies, by either of these methods of administration.

TREATMENT OF HUMAN RABIES BY SUBCUTANEOUS INJECTIONS OF PHENOL

In the autumn of 1913, Haberlin[6] published the details of a case clinically resembling rabies, treated successfully by subcutaneous injections of dilute solutions of phenol (carbolic acid).

His patient, a dog catcher, of alcoholic habits, was bitten on the calf of the leg by a dog that was suspected of being rabid. This dog bit another man, who developed rabies five weeks later and died. There was no report of postmortem examination of either dog or man.

Two days after the man's death, Haberlin's patient, who had been taciturn, morose and depressed for three or four days, began suddenly in the early evening to have spasms of the pharynx and larynx and complete inability to swallow, accompanied by extreme nervous agitation and followed by violent general convulsive seizures, alternating with periods of comparative calm. He drooled and spat saliva continually. The laryngeal muscles became tetanic to a degree that seemed to threaten suffocation, and the labored attempts at expiration produced a harsh, brassy cough that somewhat resembled the so-called rabid "bark."

A diagnosis of rabies was made, and it was decided to administer phenol according to the technic of Bacelli in cases of tetanus. At 8:30 p. m., 10 c.c. of a 1 per cent. aqueous solution of phenol were injected subcutaneously. One-half hour later 10 c.c. of a 2 per cent. solution were injected, and repeated in an hour. One hour later there was a very perceptible improvement in the patient's condition. Hourly doses of the 1 per cent. solution were now resumed and continued for ten hours, a total of eleven doses of 1 per cent. and two doses of 2 per cent. solution, equivalent to 1.5 gm. of pure phenol.

At 2 a. m., six hours after beginning treatment, the patient became somnolent, and when roused could swallow readily. At this time he stated that he was now conscious of his surroundings for the first time since the early evening, and when reminded of his previous actions and statements he denied any recollection of them. His subsequent history was uneventful. On the fourth day the patient was out of doors, and on the sixth day he resumed work.

As in Harris' case, this man's recovery was so prompt that it seems hard to believe that he really had rabies, yet the clinical symptoms were characteristic and closely resembled those of the other patient who was bitten by the same dog and who died of the disease. It was determined to treat our next case of rabies by the method described.

CASE 4.—Nathan J., aged 2½ years, was bitten Nov. 10, 1914, by a stray dog which was not captured. There were twelve extensive but superficial wounds on the face. No cauterization was done by the ambulance surgeon who first saw the case. Three days later the patient was brought to the Bronx Antirabic Clinic of the department of health. There the wounds were not cauterized, since three days had already gone by, and the scarring that would have followed the application of nitric acid to such extensive face wounds did not seem justifiable in the absence of proof that the dog was rabid. Two other children were also bitten on the face by the same dog. All three were given a full course of Pasteur antirabic treatment, the adult dose being used.

On Dec. 9, 1914, six days after the completion of his treatment, the boy became feverish and restless, and was seen by the family physician, Dr. J. J. Gurtov, who made a diagnosis of influenza. On December 11, the mother noticed that the child had difficulty in swallowing. She called the doctor again and he, suspecting rabies, notified me. I saw the patient in the afternoon. The clinical picture was confusing. The child had a temperature of 104 F., and was restless and easily frightened. He drank water without much difficulty. There were no pharyngeal spasms. Blowing cold air on his face caused fright but no spasmodic twitchings.

6. Haberlin: New York State Jour. Med., September, 1913, xiii, 493.

The phenol treatment was explained to the doctor, and he was advised to begin it later in the evening if difficulty in swallowing increased, giving two doses of 2 c.c. of a 2 per cent. aqueous solution subcutaneously an hour apart, followed by hourly doses of 5 c.c. of a 1 per cent. solution. At 11:30 p. m., the symptoms having increased, the treatment was begun and continued at hourly intervals until 7:30 a. m. During this period the child was very wild at times, and would stagger and fall on attempting to walk. He had a few pharyngeal spasms, but could swallow warm fluids. The parents thought he could not see.

On December 12, I saw the patient at 9 a. m. As there was some rigidity of the neck, a lumbar puncture was performed and turbid fluid withdrawn (an unusual occurrence in rabies). Two more doses of a 1 per cent. phenol solution were given, and at 11 a. m. the child was removed to the Reception Hospital of the department of health. There, at 1 p. m., lumbar puncture was again performed. The spinal fluid was turbid, and under pressure; 20 c.c. were withdrawn, and antimeningococcic serum introduced. The fluid on examination showed abundant leukocytes but no organisms. Blood examination showed leukocytes 24,800, polymorphonuclears 84 per cent., lymphocytes 16 per cent.

The phenol injections were resumed and continued hourly. In all, the child received two injections of 2 c.c. each of a 2 per cent. and fifteen injections of a 1 per cent. solution, equivalent to about 11 grains of pure phenol.

On admission to the hospital, the child was extremely nervous, barely closed his eyes, started at the least sound and had an anxious expression. There were intermittent twitchings of the muscles and at times the whole body was involved. The right leg and arm were moved from place to place, but it was noticeable that the left leg and arm moved hardly at all. The reflexes were a little exaggerated. There was internal strabismus of the left eye and at times a convergent strabismus. The pupils were equal and reacted to light. Blowing cool air on the face caused marked disturbance, either pharyngeal spasm or a movement of the arms, as if to repel the disturber. Attempts to drink caused evident discomfort and slight spasm of the throat; later he was unable to swallow any fluids. He was conscious and would open his mouth when asked; he answered questions.

At 6:30 p. m., the patient had slight convulsions when the bedclothes were lifted or when a draught reached the face or body. The twitchings were intermittent until 7:30 p. m., when he passed into coma. Respirations became very slow, at one period as low as eight per minute. There were no more convulsions, and the child died at 8 p. m., December 12, three days after the onset of his illness, and about thirty hours after the appearance of the first suspicious symptoms.

Necropsy was performed on the following day. Only the brain was examined. The pia was congested and cloudy; there was no evidence of meningitis. Microscopic examination of the brain showed no definite Negri bodies on careful search, and the diagnosis seemed in doubt, especially in view of the finding of turbid spinal fluid, which, in rabies, is almost always clear. Two guinea-pigs were inoculated subdurally with material from the child's brain. One of these died in twelve days and one in fourteen days, both having shown clinical evidences of rabies. Negri bodies in abundance were found in the brains of both animals.

In this case the phenol injections evidently had no effect on the progress of the disease.

The other two children bitten by the same dog were given a second full course of antirabic treatment, beginning a month after the completion of the first course. Neither one developed rabies.

CONCLUSIONS

The cases cited, so far as can be judged from such a small number, show no evidence that either quinin or phenol has any specific effect on rabies.

My thanks are due to Drs. Vosseler and Gurtov for permission to report their cases, and to Dr. Anna W. Williams and Miss Alice G. Mann, who made the laboratory studies in Cases 1, 3 and 4.

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COMPLETE SYPHILITIC ALOPECIA

WITH REPORT OF CASE *

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Complete syphilitic alopecia is not mentioned by most textbooks, or it is dismissed with the statement that it is a rare condition.

Abraham and Davis[1] state that "more cases than one" of complete syphilitic alopecia have come under their notice. Chambers[2] presented a case before the Toronto Clinical Society, Nov. 14, 1900. His patient was a woman, aged 20, whose hair began to fall at 5, and again at 12. At the age of 18 she was treated for interstitial keratitis. At the time of presentation there were only two hairs on the body, these being located on the anterior portion of the scalp.

In a review of the literature I have been unable to find mention of other cases, and therefore feel justified in reporting this case:

History.—J. F., man, aged 23, Jew, printer, admitted Oct. 2, 1914, had a negative family history. The mother died after parturition. The father, brothers and sisters were negative. There was no history of baldness in the family. The patient's past history was negative. In May, 1912, the patient had a chancre. The hair of the eyebrows began to fall out two weeks after the appearance of the chancre, the right side being first affected. Following this the hair of other regions began to fall out; in two months the body was entirely denuded. Three weeks following the appearance of the chancre the mouth was sore, and a rash appeared on the abdomen, back and left forearm. At this time the Wassermann reaction was strongly positive.

One week later the patient received an intravenous injection of salvarsan (dosage not known) and two more doses at weekly intervals. Following the second dose he had fever for four days. The patient came to Hot Springs in September, 1913, at which time he complained of headache, which was worse at night. He then received injections of mercury on alternate days for two weeks (dosage and salt not known) and 4 ounces of mercurial ointment by inunction. Potassium iodid was administered by mouth up to 150 grains per day for two weeks. From that time until admission to the hospital no treatment was administered. At the time of admission the patient complained of insomnia and nervousness.

Examination.—The most striking feature in this case was the absolutely complete alopecia, there not being a single hair on the entire body. No skin lesions were present and no scars. The epitrochlear glands on both sides were palpable. The inguinal glands were slightly enlarged, while the cervical glands were not palpable. The left tonsil was greatly hypertrophied with a denuded area covering one fourth of the surface. The right tonsil was only slightly hypertrophied. The pharynx was normal. The superficial veins of both legs showed slight varicosity, while there was a varicocele of the left side. The pulse was 60; systolic blood pressure, 130. The neurologic examination was negative. The urine was normal. The Wassermann test was negative. Lumbar puncture was refused.

Treatment.—The patient was placed on daily inunctions of 4 gm. of mercury, with potassium iodid by mouth up to 30 grains three times a day. He remained in the hospital until November 30, and as no improvement was observed, was discharged.

This patient left Hot Springs, early in 1915, and returned in January, 1916, during which time he received no treatment. He still showed a condition of complete alopecia.

* From the Leo N. Levi Memorial Hospital.

1. Abraham and Davis, in Power and Murphy: System of Syphilis, London, 1910, v, 100.

2. Chambers, Graham: Alopecia Universalis, abstr., THE JOURNAL A. M. A., Jan. 5, 1901, p. 57.

DIARSENOL VERSUS SALVARSAN

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Since it has become impossible to procure salvarsan or neosalvarsan, many have turned to a substitute, diarsenol, manufactured by the Synthetic Drug Company of Toronto, Canada. The literature on this new preparation is meager, but apparently it differs only slightly from salvarsan.

I have used over 300 doses of diarsenol, employing the same technic that I did with salvarsan. Only three patients have experienced any reaction. This percentage compares favorably with the results I have had from salvarsan.

During 1914, and as long as it could be procured, I used neosalvarsan in preference to salvarsan, because less reaction followed its use. The injections were all intravenous. The method I follow in the use of salvarsan and of diarsenol is to dissolve a full dose (0.6 gm.) in 15 c.c. of distilled water, neutralize with sodium hydroxid and then add to make the full amount, 20 c.c. If half doses are given, half the quantity of solution is used. The patients are given dosage in the office and are permitted to go home. The injection is usually given in the evening so that the patient may retire within the following hour.

If it is necessary with out of town patients to give injections during the daytime, they are advised to go to a hotel and lie down for five hours before returning home.

The average patient receives from ten to fifteen doses, depending on the stage of the case and on the strength of the Wassermann reaction. These are given every other day, beginning with a half dose and increasing the dosage so that the third is a full one of 0.6 gm., if no reaction occurs. By this method I seemingly have achieved very much better results than by giving the doses a week, two weeks or a month apart.

When I used salvarsan, patients would occasionally complain of nausea and vomiting following the injection, usually two or three hours after leaving the office. On two occasions, patients vomited while in the office.

In the administration of diarsenol, I have found a variation in the oxidation of the solution when made up. Some solutions remained a light color while others became dark almost immediately. The ampules which oxidized rapidly seemed to be those which caused the reaction, but not always so.

The histories which I give are of the cases in which considerable reaction and shock was experienced.

CASE 1.—F., man, aged 33, with history of infection ten years ago, had a + + + Wassermann reaction. He was given a 0.3 gm. and a 0.36 gm. dosage without any reaction. Immediately following the third dose of 0.42 gm. he began to have cold sweat, nausea, irregular pulse and all the evidence of shock. This lasted for about an hour, when he was able to go home. This ampule when mixed oxidized rapidly. Following this reaction no albumin or casts were found in the urine. Two days later he had a fourth dose of 0.3 gm. and continued with increasing dosage, 0.42, 0.48, 0.54, 0.6 and 0.6 gm., and in the next dose we were able to inject only 0.48 gm. when he again developed shock and had a return of the same symptoms experienced on the earlier occasion. This solution did not oxidize. He was given 15 minims of epi-

CASE 2.—MRS. M., aged 37. Husband had been infected fifteen years before, and was told that time that it did not

CASE 2.—MRS. M., aged 37, whose husband had been infected fifteen years before, was told that time that it did not amount to anything, and received two or three weeks' treatment. He consulted me because of an orchitis. A Wassermann was taken showing + + +. He was given a series of ten doses of diarsenol and later brought his wife in for a blood examination. She was found to have a + + + Wassermann. The length of her history is indefinite. She was very nervous and had a fat arm. Because of this fact she was given 0.6 gm. injection of neosalvarsan intravenously and suffered no reaction. Two days later she was given 0.38 gm. of diarsenol, became nauseated and vomited after returning home. Two days following, 0.3 gm. of diarsenol was given. When she returned home she vomited for forty-eight hours, had a marked urticaria and was much prostrated. There was no oxidation of this solution. After ten days she returned for another dose. She was given 0.4 gm. of neosalvarsan, and had a return of the same symptoms, with not quite the degree of severity experienced after the previous injection of diarsenol. This treatment was stopped and she was placed on injections of mercuric salicylate intramuscularly. I think the experience in this case demonstrates that the patient had an idiosyncrasy for arsenic, and that any preparation of arsenic acted as an acute poison.

CASE 3.—G., man, aged 35, had infection, September, 1914. In December, 1914, and January, 1915, he was given two full doses of salvarsan. Jan. 29, 1915, he was given a full dose of neosalvarsan. March 1, 1916, he had a + + + Wassermann. March 3 he was given 0.3 gm. of diarsenol. This preparation oxidized very rapidly, and when administered, the patient had profound shock, sweating, weak and irregular pulse and vomiting, the symptoms lasting for about an hour. Fifteen minims of epinephrin were given. March 6, he was given a dose of 0.3 gm., March 8, 0.48 gm., and March 10, 0.48 gm. There was no oxidation of this solution. Following the last injection and while in the office the patient was nauseated and vomited. He stated that he had eaten a hearty dinner an hour and a half before, and had drunk two or three glasses of beer. Since that time he has had, March 15, 17 and 20, a dose each of 0.3 gm. without ensuing symptoms. March 23, 0.48 gm. was given. This solution oxidized rapidly, and he had return of nausea, shock and weak, irregular pulse.

In reviewing these three cases in which unpleasant symptoms followed the use of diarsenol, I think the second would have trouble following any preparation of arsenic as demonstrated by her becoming ill after either diarsenol or neosalvarsan.

In the first case the patient was exceedingly nervous and worried, being fearful that some of the solution would get outside of the vein and make his arm sore. He had had such an experience previously, and he was also anxious to keep the fact that he was taking treatment secret from his family. I felt after his first sickness that it was largely psychologic, and still feel that inasmuch as he was able subsequently to take a number of doses without any effect, mental worry was a large contributing cause of his sickness.

The third patient had five doses of diarsenol without any reaction and three doses with marked reaction. In two of these injections there was considerable oxidation of the solution but not in the third.

In the use of diarsenol I believe the clinical results obtained and the elimination of the positive Wassermann compare very favorably with the use of salvarsan. Both of these preparations are more liable to be followed by nausea and shock than neosalvarsan.

I have noticed quite frequently that more or less oxidation occurred immediately on making the solution. As a rule, however, no more reaction was noticed after these injections than following those which remained clear. But in the cases in which reaction occurred, the majority had received a solution in which there had been more or less oxidation.

The same care, in preparation and technic, in intravenous injections, should be used with diarsenol as with salvarsan.

Electric Building.

INJURY TO EYE FROM EXPLOSION OF GOLF BALL

EDWARD J. BERNSTEIN, M.D., KALAMAZOO, MICH.

The patient, Anna N., aged 12, was first seen March 1, 1916. She complained of a severe burn of the right eye, caused the night before by the bursting of the core of a golf ball which had been used as a toy. There was great edema of the whole conjunctiva, completely enveloping the cornea, and the lids were greatly swollen. The eye had been very well washed by the family physician, Dr. Hawkey of Bloomingdale. I cleaned it with a mild acid solution (1:2,000 hydrochloric acid) and put in 5 per cent. ethyl-morphin hydrochlorid (dionin) ointment with 2 per cent. atropin. Except for hot compresses of boric acid solution, this was the entire treatment. The eye has gone on to recovery with no symblepharon and only a slight central leukoma when the patient was last seen (March 21).

The idea of using mild acid solutions is indicated from the analysis of the contents of this particular kind of ball, as given by Dr. L. W. Crigler in the *Ophthalmic Record* (October, 1913) and in THE JOURNAL (April 26, 1913, p. 1297): a mixture of barium sulphate, sodium hydroxid and common soap. This should be borne in mind, as it is commonly supposed that the mixture is an acid one.

This is the second case which has come under my care in two years. In conversation with other physicians, I learned of similar cases, none of which were reported, as the men had no other idea than that they were altogether of too common occurrence to be noteworthy. Through the courtesy of Drs. Edward Jackson and F. Park Lewis, I have been able to find the following reports:

Capps, E. D.: *Jour. Ophth. and Oto.-Laryng.*, vii, 85.
Carpenter, J. T., and Baer, B. F.: *Pennsylvania Med. Jour.*, 1912, xvi, 228.
Crigler, L. W.: Burn of Eyeball Due to Caustic Contents of Golf Ball, THE JOURNAL, April 26, 1913, p. 1297.
Elliott, R. H.: *Brit. Med. Jour.*, March 30, 1915.
Jessop, W. H. H.: *Lancet*, London, July 18, 1914, pp. 158, 171.
Langdon, F. W.: *Ann. Ophth.*, January, 1913.
Lowell, Holbrook: Burn of Eyes from Contents of Golf Ball Core, THE JOURNAL, Dec. 27, 1913, p. 2302.
Murray, A. N.: *Ophth. Rec.*, 1915, xxiv, 637.
Nance, W. O.: *Jour. Ophth. and Oto.-Laryng.*, 1912.
Ohlemann: *Klin.-therap. Wchnschr.*, xx, 604.
Posey, W. C.: *Tr. Coll. Phys., Philadelphia*, 1915, xxxvi, 327.
Suker, G. F.: *Ophth. Rec.*, 1914, xxiii, 40.
Thomason, H. E.: Golf Ball Burn of Eye, THE JOURNAL, Sept. 20, 1913, p. 965.
Wood, C. A.: *Ophth. Rec.*, xxi, 519.

I am informed that the newer balls made in this country have no such dangerous cores, and that the various sporting journals and golf associations have posted notices warning of the danger attending attempts to open golf balls.

These accidents usually happen to children, and it is apparent that a repetition of the warning to the public is not out of place.

I shall be grateful for any further reports of similar cases which physicians may send me.

A Protecting Ointment.—Dr. Frank H. Jackson of Houlton, Maine, recommends this ointment for cases in which prolonged drainage is required, as prostatectomies, cholecystostomy, pus appendicitis cases, etc., to protect the adjoining skin not only from maceration and excoriation but also from infection:

Salicylic acid	gr. x
Ointment of ammoniated mercury	ʒ ii
Lanolin, q. s. ad	ʒ i

Every surgeon has seep occasion to require something of this protective nature, and a number of men use and recommend sterile petrolatum. The ointment can be sterilized in an autoclave, and kept ready in the hospital in jars for use as required.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1915

FOURTH ANNUAL REPORT

THE JOURNAL presents herewith its fourth annual survey[1] of typhoid fever mortality in those cities of the United States having over 100,000 population. The cities included in the summary number sixty, and are the same as those reported last year.[2]

TABLE 1.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 1 (OVER 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1915	1914	Average 1911-1915	Average 1906-1910
Chicago	5.4	7.1	8.2	15.8
Boston	5.5	9.1	8.0	16.0
New York	6.0	6.2	8.0	13.5
Philadelphia	6.6	7.4	11.2	41.7
St. Louis	7.0	11.1	12.1	14.7
Cleveland	7.8	8.3	10.0	15.7
Detroit	12.8	13.0	18.1	21.1
Baltimore	21.9	22.4	23.7	35.1
Pittsburgh	24.7	13.8	18.7	65.0

Group 1, containing the nine largest cities (over 500,000 population), makes an excellent showing. Seven of the nine cities (all except Cleveland and Pittsburgh) established in 1915 new low typhoid records, and all but Pittsburgh bettered the 1914 figures.

It is noteworthy that the rate for the city of New York in 1915 dropped slightly under that for 1914, despite the fact that an epidemic of considerable proportions occurred in South Brooklyn in August and September. The New York Department of Health ascribes the great reduction in typhoid fever that has occurred in that city in the past few years to (*a*) the effective chlorination of all the croton water and (*b*) the effective pasteurization of the milk supply.[3] As we have pointed out in our previous summaries, water chlorination and the pasteurization of milk have been conspicuous factors in reducing typhoid in other cities.

Boston also experienced an explosive outbreak of typhoid fever which was apparently due to an infection of picnickers who drank water from a brook in Franklin Park. Remarkable recklessness in choice of drinking water seems to have been shown in this case, since the water was taken from an open running brook exposed to all sorts of chance contamination, although bubbling fountains supplying good drinking water were only a few feet away. Such incidents are likely to occur so long as the general public is insufficiently educated on the dangers of contracting typhoid fever, and the responsibility in such cases can hardly be attributed properly to the board of health. Notwithstanding this outbreak, the Boston typhoid rate is exceedingly low, and practically ties that of Chicago for the post of honor in this group.

Philadelphia, like Boston and New York, suffered from a localized outbreak, an excessive number of cases occurring in October in one district; but this was not sufficient to overcome the excellent conditions maintained in other parts of the city, and a new low record stands to Philadelphia's credit.

Detroit has continued the treatment of its water with hypochlorite, and has maintained a rate substantially the same as that for 1914. Warnings to boil the water have been issued at intervals by the health officials, and it is evident that this city is now alive to the real nature of its water supply problem. An excellent detailed study of typhoid fever in Detroit has recently appeared.[4]

Baltimore records another diminution in its typhoid figures, continuing the steady decline of the last few years; every year since 1910 marks a decrease. Baltimore is to be congratulated on the completion of the new water filtration plant at Montebello, which was put in operation in September, 1915. The improvement should bring about a further reduction in the typhoid rate.

Pittsburgh for some reason suffered more severely from typhoid fever in 1915 than in any year since 1911, and falls to the bottom of the list, a position it has not occupied since these annual summaries were instituted.

The fact must not escape notice that six out of the nine cities in this group reached typhoid rates under 10 in 1915, by far the best showing yet made for the group of our largest cities.

TABLE 2.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 2 (FROM 300,000 TO 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1915	1914	Average 1911-1915	Average 1906-1910
Newark, N. J.	2.5	6.3	6.8	14.6
Seattle	2.5	4.6	5.7	25.2
Milwaukee	4.5	7.9	13.6	27.0
Los Angeles	5.5	8.0	10.7	19.0
Minneapolis	7.1	11.0	10.6	32.1
Cincinnati	7.8	6.0	7.8	30.1
San Francisco	9.4	12.9	13.6	27.3
Buffalo	9.9	15.8	15.4	22.8
Washington	11.7	12.7	17.2	36.7
New Orleans	21.5	21.5	20.9	35.6

Group 2, containing the ten cities with from 300,000 to 500,000 population, makes also a fine showing. Eight cities (all except Cincinnati and New Orleans) had a lower rate in 1915 than in the preceding year. Newark, N. J., and Seattle set a new low record for cities of this class (2.5).

Perhaps the most astonishing improvement in the group is shown by the city of Milwaukee, which in 1912 stood at the bottom of the list with a rate higher than that of New Orleans. The typhoid decrease in Milwaukee seems mainly attributable to the reduction of water-borne infection brought about by chlorination of the water supply, and demonstrates anew the efficacy of chlorination of a highly contaminated water.

Buffalo, like Milwaukee, probably owes its typhoid reduction in part to chlorination of the water supply.

In our report for 1914 we pointed out that the city of Los Angeles, which had a low typhoid mortality in that year, might be expected to lower its typhoid rate still further with the more general use of the new water supply from the Owens River Aqueduct. This prediction has been justified, as appears in the reduction in the typhoid rate from 8.0 to 5.5, which is the lowest point Los Angeles has yet reached.

Washington makes a fine record for 1915, and shows what may be accomplished by persistent efforts

1. The preceding articles were published May 31, 1913, p. 1702; May 9, 1914, p. 1473, and April 17, 1915, p. 1322.

2. The number of typhoid deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of population estimates made according to the method of the U. S. Census Bureau. It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of nonresidents as well as residents occurring within the city limits. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

3. Weekly Bull., New York Dept. of Health, April 1, 1916.

4. Vaughan, H. F., and Walker, W. F.: Jour. Lab. and Clin. Med., 1916, i, 371.

at typhoid eradication in a city with a high summer temperature and other conditions tending to facilitate infection. New Orleans maintains the relatively high rate that was recorded in 1914, which was considerably above the rates for 1912 and 1913 and slightly in excess of the preceding five-year average.

TABLE 3.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 3 (FROM 200,000 TO 300,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average	Average
	1915	1914	1911-1915	1906-1910
Portland, Ore.	5.2	6.6	10.8	23.2
Jersey City	5.6	6.7	7.2	12.6
Rochester, N. Y.	6.0	10.3	9.6	12.8
Denver	6.6	10.5	12.0	37.5
Kansas City, Mo.	7.2	16.5	16.2	35.6
St. Paul	7.4	10.5	9.2	18.3
Providence, R. I.	8.4	10.5	10.2	14.3
Louisville, Ky.	12.0	20.6	19.7	52.7
Indianapolis	12.3	21.8	20.5	30.4
Columbus, Ohio	13.3	13.1	13.8	40.0

Group 3 (cities with from 200,000 to 300,000 population) shows a very high degree of improvement in typhoid fever rates. In nearly every instance lower figures than for 1914 are reported, and the percentage reduction is gratifyingly large. Portland, Ore., still holds its place at the top of the list with the low rate of 5.2.

An interesting development in the typhoid situation in this as in other groups is the fact that while more small epidemics are reported by the city health authorities, the general typhoid rate continues to diminish. In St. Paul, and in Providence, R. I., milk-borne epidemics occurred in 1915, but, nevertheless, in both cities a substantial reduction in general typhoid prevalence is noted, bringing the total typhoid mortality to a point lower than that of the preceding year. The increase in the number of localized epidemics reported simply means that typhoid fever is being everywhere more carefully watched and more effectively combated. The city of Providence had as many as seventy-one cases and five deaths in the single month of August; yet the typhoid death rate for the year 1915 was, with one exception, the lowest known in the sanitary history of the city.

Indianapolis suffered from a suspicious outbreak of gastro-intestinal disease in November, and following this, there was an excessive amount of typhoid in December. It is believed by some that the public water supply was responsible for this occurrence, although a comprehensive investigation of the outbreak does not appear to have been made.

The city of Louisville is to be congratulated on a typhoid reduction which places it in the front rank of southern cities, and on reaching a rate (12.0) which contrasts most favorably with the high average (52.7) for the years 1906-1910.

TABLE 4.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 4 (FROM 125,000 TO 200,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average	Average
	1915	1914	1911-1915	1906-1910
Omaha	3.7	5.9	14.9	40.7
Paterson, N. J.	5.1	8.1	9.1	19.3
Worcester, Mass.	5.6	3.7	5.0	11.8
Oakland, Calif.	6.7	6.4	8.7	21.5
Syracuse, N. Y.	5.9	10.6	12.3	15.6
Scranton, Pa.	10.4	9.1	9.3	31.5
Spokane, Wash.	10.7	12.7	17.1	50.3
Atlanta, Ga.	11.1	38.9	31.4	58.4
Fall River, Mass.	11.8	10.3	13.4	13.5
Richmond, Va.	12.7	13.1	15.7	34.0
New Haven, Conn.	18.3	13.8	18.2	30.8
Toledo, Ohio	23.9	36.3	31.4	37.5
Memphis, Tenn.	24.6	41.2	42.5	35.3
Birmingham, Ala.	33.7	40.2	....	....

Group 4, containing the cities with from 125,000 to 200,000 population, includes several southern cities which have in previous years recorded very high typhoid fever rates. Atlanta, Birmingham and Memphis all show for 1915 much lower rates than in previous years. Atlanta, in particular, had a rate only a little more than one-fourth that of the preceding year.

Omaha makes a really splendid record (3.7) for a city which only four years before (1911) suffered from a rate of 44.9.

Scranton reports a slightly higher rate than in 1914. Typhoid fever was especially prevalent in Scranton in September, and the citizens were officially warned to boil their water at that time; but there does not appear to be any particularly conclusive evidence incriminating the water supply.

Richmond, Va., which was remarkably exempt from typhoid during the first six months of 1915, had more of the disease in the latter half of the year, so that the rate is nearly up to that of 1914. The amount of typhoid in New Haven (18.3) is again discreditably high for a New England city.

Toledo shows a considerable decrease in typhoid prevalence over 1914, but the rate for this city is still disturbingly high, only five cities having a higher rate in the total of fifty-nine reporting for 1915. It is said that 10,000 surface wells are in use in Toledo, and that examination of the water from several hundred of them has given evidence of great contamination. The citizens and officials of Toledo seem thoroughly awake to the menace of the typhoid situation, and an active campaign is being waged for doing away with the surface well as a source of supply. Other possibilities will probably not be overlooked.

The city of Birmingham brings up the foot of the list, and has the highest rate (33.7) of any large city in the United States, barring Nashville (35.1).

TABLE 5.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 5 (FROM 100,000 TO 125,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average	Average
	1915	1914	1911-1915	1906-1910
Cambridge, Mass.	1.8	1.8	4.0	9.8
Bridgeport, Conn.	5.1	3.4	5.0	10.3
Tacoma, Wash.	5.5	6.7	10.4	....
Trenton, N. J.	6.4	14.9	22.3	....
Camden, N. J.	6.7	5.8	4.5	....
Salt Lake City	7.0	11.8	13.2	....
Springfield, Mass.	10.6	21.8	17.6	....
Albany, N. Y.	12.6	17.5	18.6	17.4
Dayton, Ohio	13.6	9.2	14.8	22.5
Lowell, Mass.	16.0	9.8	10.2	13.9
Reading, Pa.	16.2	28.0	31.9	42.0
New Bedford, Mass.	18.2	9.8	15.0	16.1
Hartford, Conn.	18.3	17.7	15.9	19.0
Dallas, Texas	20.3	35.2	....	....
Grand Rapids, Mich.	24.6	26.7	25.5	29.7
Nashville, Tenn.	35.1	47.3	40.2	61.2
San Antonio, Texas*	....	18.2	....	....

* In spite of repeated efforts we have not been able to secure the number of deaths from typhoid fever during 1915 in San Antonio.

Group 5 (from 100,000 to 125,000 population) shows perhaps more fluctuation in typhoid rates than any other group of large cities. Six cities out of sixteen manifest a typhoid increase as compared with 1914. Three of these cities, Dayton, Ohio; Lowell, Mass., and New Bedford, Mass., have experienced a very considerable typhoid rise. Hartford, Conn., also suffered from a sharp outbreak in August which may have been due to a milk supply infection. The health authorities of some New England cities like New Haven, Hartford and New Bedford will perhaps be asked why these communities had rates over 18 in 1915, while Worcester had 5.6, Boston 5.5, and Cambridge only 1.8. The last named city duplicated its remarkably low rate for 1914, and has no rival in the United States for the low average of the past five

years. Why should typhoid fever year after year be five times as prevalent in New Haven as in Cambridge?

Springfield, Mass., which had a relatively high typhoid rate in 1914, shows a great reduction in 1915, and records a figure more nearly what might be expected in a city of its location and general high level of municipal intelligence and efficiency.

Grand Rapids, Mich., in 1915 again suffered from a particularly high rate (24.6), the highest in any northern city except Pittsburgh. In commenting on the Grand Rapids rate for 1914, we pointed out that the typhoid prevalence was far too great for a city provided with a filtered water supply, and suggested that some explanation was called for. This question might now be raised more insistently since an excessively high rate has been maintained for two consecutive years. The 1911-1915 average in Grand Rapids is exceeded by only five cities, three of these in the South.

Nashville still brings up the bottom of the list, but this city had much less typhoid than in 1914, and is apparently on the way to further improvement. The Nashville authorities apparently realize the importance of establishing sewer connections throughout the city, and measures are being taken to remedy the deplorable conditions that have existed in some sections. Like other southern cities it is coming to recognize that the modern city is a sanitary unit and that if opportunities for fly-borne conveyance of excretal infection are allowed to persist anywhere, the whole city is eventually the sufferer.

TABLE 6. — TOTAL AVERAGE TYPHOID DEATH RATE (1910-1915)

	Total Population (57 Cities) Estimated by U. S. Census Bureau Methods	Typhoid Deaths	Typhoid Death Rate per 100,000
1910	20,996,035	4,114	19.59
1911	21,545,014	3,391	15.74
1912	22,093,993	2,775	12.56
1913	22,642,972	2,892	12.77
1914	23,191,951	2,408	10.38
1915*	23,621,302	2,045	8.65

* Since we have failed to secure data from San Antonio, the average for 1915 is based on 56 instead of 57 cities as in previous years.

Altogether, the record for 1915 is most encouraging. Many American cities achieved very low typhoid rates, so low, in fact, that they would have been regarded a decade ago as almost unattainable by any large city. With few exceptions those cities which still have excessive typhoid are investigating local conditions and applying appropriate remedies.

For the first time since these summaries were undertaken, a comparison of two full five-year periods becomes possible in most cases. With the exception of Memphis and Albany, the average rate 1911-1915 is lower than the average rate 1906-1910. Sixteen cities (Chicago, Boston, New York, Newark, N. J., Seattle, Cincinnati, Jersey City, Rochester, N. Y., St. Paul, Paterson, N. J., Worcester, Mass., Oakland, Calif., Scranton, Pa., Cambridge, Mass., Bridgeport, Conn., and Camden, N. J.) had an average typhoid rate of less than 10 for the years 1911-1915, Rochester and Paterson joining the cities listed last year and Lowell dropping out. There was only one city (Cambridge, Mass.) in this class in 1906-1910.

In 1915, forty-three cities had a lower typhoid rate than in 1914, and fourteen a higher; thirty-two cities had a death rate under 10 in 1915, as compared with twenty-four in 1914 and nineteen in 1913. The following cities had a death rate under 5: Newark, N. J., Seattle, Milwaukee, Wis., Omaha, and Cambridge, Mass. — one more than last year.

Therapeutics

MEDICATION

(Continued from page 1199)

Let Us Aim to Improve Our Medicinal Treatment of Disease

Toward that end will you prescribe elixir of calcylates compound? This is a specialty sold by a New York firm in 6 ounce and pint bottles, and the dose for an adult is stated to be from 1 to 2 dessertspoonfuls three or four times a day.

Each dessertspoonful is said to contain the "equivalent of":

"Calcylates (calcium and strontium di-salicylate)	5 grains
Resin of guaiac	½ grain
Powdered digitalis leaves	¼ grain
Powdered squill	¼ grain
Extract of colchicum seed	¼ grain
Cascarin	1/10 grain
Aromatics."	

COMMENTS

1. The U. S. Pharmacopeia places the dose of strontium salicylate as 15 grains, and the dose of sodium salicylate as 15 grains. It is well known that calcium salts are slower to act and usually less soluble than sodium, potassium or strontium salts. Therefore the dose of 5 grains in a dessertspoonful of liquid of this so-called "calcylates" is too small.

2. The U. S. Pharmacopeia gives the dose of resin of guaiac as 15 grains; therefore the dose of ½ grain is very small, but is certainly large enough, as it probably has no activity at all against "rheumatism, lumbago, neuralgia, sciatica, etc.," for which conditions this mixture is recommended.

3. It is never advisable to give digitalis in a multiple mixture. If digitalis is required for activity on the heart or on the kidneys, it should be given separately, and in such dose as to cause the desired effect.

There is absolutely no excuse for this mixture. There is no possibility of this combination of salicylates called "calcylates" being of any more value, or, in fact, being of as much value in rheumatism as is sodium salicylate or some other single salicylate. It is a clinical fact that the dose of any salicylate or any combination of salicylates must be large if it is to be of value in inflammatory rheumatism. Large doses of salicylates are liable to disturb digestion; and many proprietary salicylates, or salicylic acid combinations, on the market, that are recommended "because they do not disturb the stomach," may act thus blandly because the dose is small, or because they are in such form that they are absorbed slowly or not at all. The foregoing dose of salicylates in inflammatory rheumatism in an adult is absurd. If double the dose is taken, namely 2 dessertspoonfuls — 10 grains of the salicylate — the salicylate might have some slow activity, slow because these salts, calcium and strontium salicylate, are not absorbed as readily as sodium salicylate. But why should a patient be given 2 dessertspoonfuls of medicine containing a lot of stuff in the way of guaiac, squill and colchicum, which are not needed, when he may be given his proper dose of sodium salicylate, if that is what he needs, in wintergreen water or effervescing water?

It is rare, in inflammatory rheumatism, that digitalis is indicated.

(To be continued)

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SATURDAY, APRIL 22, 1916

NEW OBSERVATIONS REGARDING GROWTH

The retardation of growth is a phenomenon which is frequently brought to the attention of the physician in a way that raises baffling questions. Sometimes retardation is associated with an obvious undernourishment, so that the cause is readily discovered in a partial inanition, due perhaps to actual insufficiency of food without any further complicating factors. In this form delayed development may occasionally be discovered among the children of the poor. Obviously, permanent gains of weight and increments in stature can ensue only when the intake of energy in assimilable forms is adequate for both maintenance and growth. There are, however, quite different cases in which growth is delayed even in the presence of an abundance of food. The adolescent organism, in such instances, is usually incompetent for some reason to utilize the available nutriment for its physiologic requirements. There may be congenital disorders that limit the possibility of growth; there may be acquired defects or diseases that occasion the retarding factor, or there may be even more subtle complications, the results of which can be seen but not adequately explained or interpreted. Our ignorance is usually veiled by assigning failure to grow in these instances to a "faulty constitution." Of late, since the possible relation of some of the endocrine glands, like the pituitary and thyroid, to growth has been brought into prominence, retardation of development has been charged in some cases to a defective evolution or functioning of the organs of internal secretion.

It is generally known, from observation of actual instances, that suppression of growth and even marked decline in weight for comparatively brief periods may be followed by resumption of growth, excellent restoration of loss of body substance, and subsequent recovery of the power to complete the developmental cycle. This is a familiar manifestation of recuperation from severe and prolonged illness in childhood. There is a widespread belief, however, that unless the capacity to grow is exercised within the period at which it is ordinarily expected to manifest itself, that is, before the age of what is termed adult life, the possibility of further true growth is permanently forfeited. This does not refer, of course, to such gains of weight as are represented by the addition of fat to the tissues characteristic of middle life — a gain in the storage depots of the organism rather than a typical increase in stature. One American physiologist has expressed the current belief by saying that the capacity for undergoing expansive growth appears to be transient, and that those cells which fail to react during the proper growing period of an animal have lost their opportunity forever.[1] In the same sense the Berlin physiologist Rubner[2] has maintained that the capacity to grow finally disappears, even when it is not called into use. In discussing the growth of children, Boas[3] has noted that although retardation of early growth is made up by abnormally rapid development at a later period, an unduly prolonged retardation cannot be entirely compensated for; accordingly, excessive early inhibition of growth may be detrimental to the individual.

Some of the problems here involved have been subjected to an investigation in a series of prolonged experiments undertaken by Osborne and Mendel[4] at New Haven, in a series of studies conducted on small animals having a brief period of growth and a short span of life. In the case of albino rats, in which increment of body weight ordinarily ceases before the age of 300 days, resumption and completion of growth were readily obtained at an age of more than 550 days. If these statistics were translated into terms of human life, they would indicate that resumption of growth would still be possible in individuals who remained ungrown until far into what is commonly termed "middle" life. It is thus evident that the growth impulse, or capacity to grow, can be retained and exercised at periods far beyond the age at which growth ordinarily ceases. This finding suggests that the capacity to grow is lost only by the exercise of this fundamental property of living organisms.

Admitting the possibility of some renewal of growth after conditions in which increment of size has been retarded, there remains the question as to whether the subsequent gain will ever entirely or adequately make good the lapses by failure. To this also Osborne and Mendel have offered an experimental answer. Even after very prolonged periods of suppression of growth, the animals can subsequently reach the full size characteristic of their species. In this respect there is no impairment of the individual. The satisfactory resumption of growth can be attained not only after stunting by underfeeding, but also after the cessation of growth which results when the diet contains pro-

1. Donaldson, H. H.: The Growth of the Brain, New York, 1903, p. 37.
2. Rubner, M.: Kraft und Stoff im Haushalte der Natur, Leipzig, 1909, p. 116.
3. Boas, F.: The Growth of Children, Science, Dec. 13, 1912, p. 815.
4. Osborne, T. B., and Mendel, L. B.: The Suppression of Growth and the Capacity to Grow, Jour. Biol. Chem., 1914, xviii, 95; The Resumption of Growth after Long Continued Failure to Grow, Jour. Biol. Chem., 1915, xxiii, 439.

teins unsuitable for the synthetic processes of growth or is low in protein. Growth in the cases referred to is resumed at a rate normal for the size of the animal at the time. It need not be slow, and frequently it actually exceeds the usual progress. The size or age at which the inhibition of growth is effected does not alter the capacity to resume growth. Even when the suppression of growth is attempted for very long periods at a very small size (body weight), the restoration may be adequate when a suitable diet is furnished.

Mere late increase in size, even though it proceeds with the uniformity of early characteristic growth, need not necessarily lead to the perfect organism and the ideal harmony and correlation of functions that might be expected in uninterrupted growth at the proper age. A noble stature may conceal inferior organs. With respect to one fundamental activity, Osborne and Mendel have obtained evidence of the absence of detrimental results. The procreative functions are not necessarily lost by prolonged failure to grow before the stage of development at which breeding is ordinarily possible.

Similar experiences are recorded in which the successive gains of size, though continued, are small. The period of growth may be greatly prolonged by inadequacies in the diet, so that growth becomes very slow without being completely inhibited. Though the time of reaching full size is thus greatly delayed, growth, as expressed by suitable body weight, can ultimately be completed even during the course of long continued retardation.

PUBLIC HEALTH LABORATORIES

An eminent historian has remarked that no science, no department of knowledge, can be thoroughly understood except in the light of its historic genesis and growth.[1] Historical study thus tends not only to be an aid to refinement, breadth of view and sympathy, but also to be helpful in the handling of great questions in any of the sciences relating to man. It is a splendid discipline for reasoning of the practical kind most needed in the affairs of life. This belief may be offered as the reason for reverting to some of the little known facts regarding certain features of the continually increasing public health movement.

According to Winslow[2] of Yale, the first application on a large scale of laboratory methods to the public health service in the United States dates from the study of the sanitary condition of the Massachusetts water supplies in 1870 by William Ripley Nichols, the pioneer sanitary chemist. This step followed the establishment of the state board of health of Massachusetts in 1869 — an act which has been productive of much progress in the development of the hygiene of water supplies and the question of sewage disposal in this country. The public health laboratory in the modern sense of a laboratory independently supported by a city or state, aiding in the routine solution of its sanitary problems, was a later growth, and dates from the advent of bacteriology as an independent discipline in this country. It must be recalled that progress in the study of micro-organisms was hampered by the inadequate technical methods in use until 1880, when Koch introduced the procedures which have made bacteriology an exact science. The use of solid nutrient mediums made possible the isolation of bacteria, and their biologic investigation in pure culture. To this were soon added the advantages of morphologic examination of micro-organisms, which came from the use of anilin staining dyes developed by Weigert, Koch and Ehrlich. The discovery, in 1880, of the typhoid bacillus, the bacillus of fowl cholera and the pneumococcus, and in 1882 of the tubercle bacillus, marked one of the important steps in the great modern era of the elucidation of the causation of infectious diseases.

Winslow states that it is difficult to assign priority to any particular state, city or university in the actual establishment of the public health laboratory in America. It was in November, 1887, that the Lawrence Experiment Station of the Massachusetts State Board of Health was established. In the same winter the state of Michigan opened a hygienic laboratory at Ann Arbor; and in 1888 Dr. Gardner T. Swarts founded at Providence what is said to have been the first municipal public health laboratory in this country. According to Winslow, the laboratory established by Dr. Herman M. Biggs in connection with the New York City Department of Health, as the result of the attempt to apply the newer bacteriologic methods to the detection of cholera among immigrants after the Hamburg epidemic of 1892, was probably the first municipal bacteriologic laboratory in this country devoted primarily to diagnostic work — possibly even the first of its kind in the world.

Few of the thousands of physicians who send specimens to the public diagnostic laboratories, and depend on this valuable assistance as one of the fundamentals of their daily routine, realize how this service has grown from its small beginnings a few years ago. Dr. W. H. Park, for example, who early began the examination of throats for diphtheria bacilli about twenty years ago, now has 250 workers under his direction in the New York City laboratories, which annually examine more than 75,000 diphtheria cultures. This, however, is only a single aspect of the diagnostic work now being carried out in many comparable institutions. We may recall the public facilities for the determination of tuberculosis, malaria, typhoid fever, gonor-

1. "L'histoire, en effet, est la forme nécessaire de la science de tout ce qui est soumis aux lois de la vie changeante et successive" (Renan: Averroes et l'averroisme).

2. The facts cited are taken from a recent address before the Laboratory Section of the American Public Health Association by its chairman, C.-E. A. Winslow (The Laboratory in the Service of the State, Am. Jour. Pub. Health, 1916, vi, 222).

rhea, syphilis, glanders, rabies and cancer; the examination of foods and drugs, of water supplies and sewage disposal, and the control of vaccine and serum manufacture. As Winslow has said, the work of the laboratory is one of the chief foundations on which all sound public health work must be based. A casual review of its history shows how its functions are multiplying, and how numerous and taxing are its problems. Only two states, Massachusetts and New York, appropriated over $40,000 for public health laboratory work in 1914. The practitioner and the patient who benefit from it should see that the public understands what these expenditures can accomplish, and encourage a liberal support to a service so eminently useful and progressive.

EMETIN: A NOTE OF WARNING

While it may be accepted as a truism that remedies marketed under fancy proprietary names too often are not what they pretend to be and do not accomplish what they claim, it must not be lightly assumed that the converse is equally true. The physician is rightly suspicious of such products; but on the other hand he should not take it for granted that because a drug bears the name of a definite chemical compound, it is true to name and pure, and therefore trustworthy in its actions. Of this fact we have recent demonstration in respect to emetin. The use of this drug has greatly increased, during the last two or three years, owing to its extensive employment in pyorrhea alveolaris and in amebic dysentery. Furthermore, it is being used by certain mail-order "pyorrhea cure" quacks. It is administered in quantities not far removed from the subtoxic dose, while, from the very nature of the maladies in which it is used, the patients are frequently in a condition of exhaustion. These facts combine to render it vitally important that, in prescribing this remedy, we should be assured that it is of uniform composition and pure. Nor, in this particular instance, is there any reason why this standard should not be constantly attained.

For this reason, a recent article in the *Archives of Internal Medicine*[1] must have come as a rude awakening to those who, relying on the conscientiousness of the manufacturer, and the reputed harmlessness of emetin, have been employing this potent remedy with an easy mind.

Two cases from the Johns Hopkins medical clinic are described in which symptoms of poisoning and in one instance death resulted from the administration of emetin hydrochlorid. The fatal case occurred in a man who entered the hospital with a diagnosis of syphilis and amebic dysentery. He was treated for twenty days by subcutaneous injections of emetin hydrochlorid. The average daily dose was 1½ grains; the total amount he received was 29 grains. A preexisting slight diarrhea was at first ameliorated and then markedly intensified till, on the eighteenth day of the treatment, there were eighteen stools in the twenty-four hours. This diarrhea ceased five days after the discontinuance of the injections. From the sixteenth day on, signs of grave kidney mischief developed. There were marked acidosis and acute renal insufficiency, with blood in the urine. Bronchopneumonia supervened and, after a period of dyspnea, the patient collapsed and died thirty days after the first injection and ten days after the last.

The other patient was a woman who received only one-half grain daily during four days, for pyorrhea alveolaris. She developed intense diarrhea with pain and tenesmus. These symptoms cleared up six days after withdrawal of the emetin. The patient was then in a toxic delirious state which lasted one week. These symptoms were quite out of proportion to the moderate dose employed. The particular preparation employed in this second case was, therefore, suspected to be unusually toxic. This suspicion was confirmed by an elaborate experimental research into the toxicity of emetin hydrochlorid preparations obtained from five different commercial sources, in the course of which investigation sixty-two animals were used. The toxic effects manifest themselves in various ways, but in using emetin one must be on the lookout for such danger signals as intense diarrhea, albuminuria, and peripheral neuritis.

It is true that this fatal case is the first recorded in the literature, while instances of grave toxic effects have not often been reported. But these facts must not be accepted at their face value. Two peculiarities of the action of emetin (or of the associated impurities) conspire to mislead. In the first place, certain of the toxic effects closely imitate the symptoms of dysentery, the very disease in which emetin is most extensively used in relatively large doses. Secondly, the maximum poisonous effect tends to be deferred, occasionally manifesting itself some days after the drug has been discontinued. The phenomena of intoxication are, therefore, apt to be interpreted as an exacerbation of the preexisting morbid condition.

The case of emetin is not unique in the history of pharmacology. At one time the products marketed under the name of "aconitin" varied startlingly in their toxicity. At that period the chemistry of aconitin and of its congeners had been very inadequately investigated. No such excuse avails regarding impure emetin. This alkaloid is a well defined chemical compound. It is commercially practicable to ascertain, with precision, the emetin content of the hydrochlorid and to insure its freedom from dangerous impurities. In the article referred to it is proved, clinically and experimentally, that at least one house of repute is supplying, under the name of emetin hydrochlorid, a

1. Levy, R. L., and Rowntree, L. G.: On the Toxicity of Various Commercial Preparations of Emetin Hydrochlorid, Arch. Int. Med., March, 1916, p. 420.

product so unusually toxic as to prohibit its use, at any rate in anything approaching the ordinary dose.

It is open to the manufacturer referred to to say that its greater toxicity is due to its greater purity. There is, however, nothing in the facts which supports such a contention, and there is much which militates against it. However this may be, one indisputable fact stands out: The products supplied as emetin hydrochlorid are variable in composition and in toxicity to a degree which constitutes a serious danger. It therefore behooves physicians to insist on some declaration from the firm supplying emetin hydrochlorid as to its purity and as to the standard employed.

OBSERVATIONS ON THE CHEMICAL SYMPTOMS OF PELLAGRA

In the midst of the controversy concerning the precise etiology of pellagra, certain facts in regard to the metabolism of persons suffering from the disease now stand out as clearly demonstrated. These are the frequent occurrence of gastric anacidity and the presence of indicanuria. If further evidence were needed to substantiate these characteristic symptoms in pellagra, it could be found in the latest contribution on this subject from the Pellagra Laboratory of the U. S. Public Health Service, at Spartanburg, S. C.[1] The anacidity so commonly found in pellagrins has usually been reported to be associated with an entire absence of pepsin or with only very small quantities of this enzyme in the gastric contents. The statistics now available for 139 cases of the disease show an absence of gastric hydrochloric acid in sixty-seven, or 48 per cent., and a deficiency of this acid in thirty-four cases, or 24 per cent.

Niles has expressed the opinion that a deficiency in the secretion of acid in the stomach is to be expected in most cases of pellagra of long standing. The investigators of the Public Health Service do not believe that it is possible yet to correlate the absence of free hydrochloric acid with any single clinical type of the disease. They found, as a rule, that when the gastric contents were of normal acidity, pepsin was present in reasonable amounts. On the other hand, a deficiency or absence of acid is all but invariably associated with a lack of pepsin. The absence of pepsin in such circumstances does not necessarily imply that the secreting cells have entirely lost the power to manufacture the enzyme. It may signify merely that the conditions produced by the failure of hydrochloric acid lead to the destruction of pepsin or pepsinogen as soon as it appears in the stomach. Administration of acid with the test meals invariably produced gastric contents which exhibited a notable peptic activity. The inclination, therefore, is to view the absence of pepsin in pellagra as a secondary effect, and to regard the gastric lesion as one which affects primarily the acid-producing mechanism alone. In the experience of the government observers, the condition of gastric anacidity, once established, appears to be very resistant to treatment, if indeed it is not quite irremediable. They therefore look on the failure of the secretion of acid as the consequence of some permanent anatomic lesion of the gastric mucous membrane.

The tendency for intestinal contents, including bile and pancreatic juice, to regurgitate into the stomach under circumstances in which the chyme is insufficiently acid to regulate the closure of the pylorus might be expected. Accordingly, Hunter and his associates[1] have shown for the first time in pellagrins that the stomach from which free acid and pepsin are absent almost always contains trypsin, sometimes in very considerable concentration. The regurgitation is evidenced not only by the appearance of trypsin in the stomach, but frequently also by the presence there of bile. Trypsin was not to be expected, and was in fact not found, in the cases in which hydrochloric acid was given by mouth, or when gastric acidity was normal or increased. In some of these cases, to be sure, there was regurgitation, as shown by the presence of bile; but if, as is probable, pancreatic juice accompanied the bile, its trypsin would, of course, be rapidly destroyed in the normally constituted gastric secretion. The Spartanburg investigators point out that the finding of trypsin shows that while the pathology of pellagra may involve the complete suppression of gastric digestion, the function of the pancreas is not appreciably affected. This would account for the circumstance that pellagrins are able, even in the entire absence of pepsin and hydrochloric acid, to utilize protein as well, or nearly as well, as healthy persons.

Indicanuria is a familiar accompaniment of a lack of hydrochloric acid in the stomach whereby bacterial changes are not inhibited by the normal antiseptic of the digestive tract at the outset of the alimentary processes. The chemists of the Thompson-McFadden Pellagra Commission of the New York Post-Graduate Medical School and Hospital[2] state that the presence of excessive amounts of indićan in the urine associated with a high elimination of ethereal sulphates, when considered in connection with the abnormal amounts of indol and skatol in the feces, points to some unusual bacterial conditions in the intestine. From the data at hand this putrefaction would appear to take place rather high up in the intestine. The indicanuria in the Spartanburg series of cases has been neither so frequent nor so extreme. Furthermore, it seems here as

1. Hunter, A.; Givens, M. H., and Lewis, R. C.: Preliminary Observations of Metabolism in Pellagra, Bull. 102, Hyg. Lab., U. S. P. H. S., 1916, p. 39. Earlier observations on anacidity in pellagra have been reported by Johnson: South. Med. Jour., 1911, iv, 478; by Cecconi: Gazz. d. osp., 1911, xxxii, 77, and by Niles: Pellagra, 1912, p. 77; and the presence of indicanuria by Ormsby and Singer: Arch. Int. Med., 1912, x, 123 and 219; and by Myers, V. C., and Fine, M. S.: Am. Jour. Med. Sc., 1913, cxlv, 705.

2. Myers, V. C., and Fine, M. S.: Am. Jour. Med. Sc., 1913, cxlv, 705.

if gastric efficiency were only one of the factors in determining the extent of indican formation. The character of the diet also appears to play a part. The pellagrin with diminished gastric acidity will always show an excessive indican output when his diet is animal; on a vegetable diet, indican may be absent, moderate or high. Where the gastric acid secretion is normal a vegetable diet may fail to evoke an output of indican, though this may promptly appear on the diets containing meat. It is too early to explain the differences here pointed out. Hunter, Givens and Lewis suggest, however, that the medium offered by the intestinal contents during the vegetable regimen is certainly very different from that presented by a meat diet. This might, on the one hand, have the effect of so altering the intestinal flora that indol formers largely disappear; or, on the other, without causing any change in the species actually present, may so modify their biochemical activities that other than the familiar products of putrefaction are produced. In any event, a well marked indicanuria shows a decided tendency to decline as the patient recovers from an acute attack of pellagra.

THE NATURE OF EDEMA OF THE LUNGS

Pulmonary edema is found as an incident in connection with a considerable variety of diseases. It may be observed particularly associated with disturbances of the kidneys or the blood vessels. Edema of the lungs sometimes follows anesthesia, especially that induced by ether. It is also known as a consequence of various infectious diseases, such as typhoid fever, pneumonia, bronchitis, scarlet fever and influenza. These diverse indications of its etiologic relationships make it less surprising that, in considering the subject from the clinical standpoint, various possible explanations have been advanced. One group of writers has inclined to accept a toxic origin of the edema; others have preferred a mechanical explanation.

The logical procedure of determining the conditions which entail a pulmonary edema when they are relatively uncomplicated by a diversity of uncontrollable factors is realized in recent experimental investigations of the subject in the physiologic department at University College, London. Dr. Matsuoka[1] of Tokyo made use of the now familiar heart-lung preparation, a group of isolated "surviving" organs kept physiologically functional by the circulation of blood pumped by the heart itself and aerated by the artificially ventilated lungs of the same specimen. Under such conditions it is possible to regulate the cardiac conditions, to produce in a heart any desired output or inflow and keep them constant. Various combinations of arterial pressure and venous inflow can be secured, and the different mechanical factors on the arterial and venous sides can be examined. In such a preparation the appearance of a bloody, frothy fluid in the tracheal outlet furnishes a definite criterion of the existence of an edema of the attached lungs; earlier evidence appears in the increased volume and consistency of the lungs, and by the presence of râles.

Under the conditions here noted, obstructive edema of the lungs takes place when certain limits of combined arterial pressure and venous inflow are exceeded. The actual statistics of these factors will vary with a variety of contributory bodily conditions or circumstances. The edema is very considerably facilitated by obstruction to the aorta. Welch believed, many years ago, that by preventing the flow of the blood from the lungs, hemorrhagic infarction and not edema is produced. According to Löwit, on the other hand, obstruction of the root of the aorta causes prevention of, or difficulty in the outflow from the pulmonary veins, and also an increased filling of the right heart. Matsuoka[1] found that the blocking of the work of the left ventricle is transmitted to the pulmonary vessels, and thus the pressure in the pulmonary artery is raised. The obstruction of the aorta thus favors the production of edema of the lung in that thereby a relatively smaller amount of venous inflow is sufficient to cause the condition. The principal factors in the transudation of edematous fluids into the lung alveoli are the excessive elevation of pressure in the pulmonary circulation, however it may be brought about, and the excessive passive dilatation of the lung capillaries.

Gaseous metabolism and energy consumption of the heart are decreased in obstructive edema of the lung. Complete stoppage of the heart takes place rapidly, as the maximum metabolism of the organ, because of the decreased rate of action, is insufficient to provide the necessary energy for its contractions. Matsuoka points out that when one is faced with the danger of cardiac failure it is justifiable to administer, by inhalation, the oxygen necessary for the blood. Inasmuch as it is very difficult to supply oxygen in sufficient quantity to edematous lungs, he considers it a rational therapeutic procedure to perform a previous venesection if conditions permit it.

1. Matsuoka, Y.: A Contribution to the Pathology of Obstructive Edema of the Lung, Based on Observations with the Starling Heart-Lung Preparation, Jour. Path. and Bacteriol., 1915, xx, 53.

Medical Students Petition for Change of Name of Street.—An unusual ceremony took place recently at Seville when the medical students of the local university and others from Madrid and elsewhere gathered at Seville to celebrate the unveiling of a tablet on a street corner, a memorial to Professor Letamendi, 1828-1897. The inscription on the tablet is to the effect that "the city council of Seville has herewith granted the petition of the medical students of the University of Seville that the name of this street be changed to Letamendi, to do honor to the great Spanish physician, J. de Letamendi, to the glory of medicine and honor of Spain." Among his numerous works are "Education of the Will as the Basis of Hygiene," "Criminality from the Standpoint of Science," and various textbooks on general pathology and clinical medicine.

Current Comment

THE COST OF WATER PURIFICATION AS AFFECTED BY THE WAR

The prices of certain chemicals used in water purification have risen greatly on account of the war. The actual amount of chemicals used in water purification plants is insignificant from the standpoint of total consumption, and at present the difficulty of the situation consists in the fact that the water-works officials are at the mercy of the prices set by the needs of the manufacturers of explosives and of many industrial processes. The normal price of bleaching powder, for example, on the New York market, is about $1.25 to $1.35 per hundredweight, while the New York wholesale quotations, March 4, 1916, were from $10.50 to $12.50 per hundredweight.[1] Fortunately the advance in cost of liquid chlorin has been much less (about double the normal rate), so that chlorin disinfection may still be inexpensively carried out. The present prices of aluminum sulphate and copper sulphate are from three to fourfold the normal. The cost of iron sulphate, on the other hand, has risen but little. The increased cost of aluminum sulphate, which is so commonly used as a coagulant in the mechanical filters, is probably the most serious item of this sort in water-works expenses. It is to be hoped that water-works officials will be on their guard against any tendency toward a lowering of the efficiency of purification because of the rise in operating expense. Here, if anywhere, the motto "safety first" has its place. Any saving effected in the quantity of chlorin or other chemicals used is trivial compared with the possible dangers of infection. The present chemical situation suggests at most the substitution of liquid chlorin for calcium hypochlorite, and where practicable, of lime and iron sulphate for aluminum sulphate.

1. Monfort: Eng. News, March 16, 1916. p. 530.

WORKS AND SCIENCE

Senator Works of California, who seems to be the representative of the Christian Scientists, has introduced a resolution in the United States Senate, calling on Surgeon-General Rupert Blue of the United States Public Health Service to resign as President of the American Medical Association, a position to which he was elected last year in recognition of his distinguished services for the public health. The preamble, we are told, "declared that no government officer should be associated with such an organization." Without doubt, the preamble and resolution represent the senator's views and knowledge on scientific matters. The American Medical Association is the national organization of the profession of which Dr. Blue is a prominent and honored member. To it belong all the medical officers of the government services. If Senator Works is consistent, he will enlarge the scope of his resolution. He will forbid any chemist in the government service to belong to the American Chemical Society; any lawyer in the government service to belong to the American Bar Association; any scientist in the government service to belong to the American Association for the Advancement of Science; any engineers employed by the government to hold membership in their technical associations. No geographer, if Senator Works is consistent — but why expect the impossible? But, if it is to apply to medical men only, why limit the scope of the resolution to Surgeon-General Blue? Why not make the resolution retroactive and censure Surgeon-General Gorgas of the army for holding the presidency of the American Medical Association from 1909 to 1910, and Surgeon-General Sternberg of the army, who was President in 1898, or Surgeon-General Woodward of the army, who was President in 1882? Meanwhile, THE JOURNAL extends its sympathy to the other members of the Senate who are forced by "senatorial courtesy" to listen to such nonsense.

THE ARMY MEDICAL DEPARTMENT AND PREPAREDNESS

THE JOURNAL recently[1] discussed the relation of the Army Medical Department to preparedness. Since that time, the House has passed the Hay bill, and the Senate the Chamberlain bill. The subject is now in the hands of a conference committee which is endeavoring to harmonize the two measures. Neither of these bills, however, provides adequately for the medical service. In the previous editorial it was shown that a proportion of seven medical officers to every thousand men enlisted is, by consensus of competent opinion, the minimum basis on which a satisfactory service can be built. This is the proportion provided by Congress in the army medical reorganization bill in 1908, and the fact that the present establishment is below that mark is due to failure to provide for increase in the personnel of the Medical Department *pari passu* with the increase in the army authorized. The Hay bill recognizes the principle of a proportional establishment, but fails in the application, because it contemplates a reduction of the ratio in time of peace. The bill introduced by Senator Chamberlain, while providing a larger present absolute number of medical officers, disregards the principle entirely. During the discussion in the House of Representatives, Mr. Hay said:

> The purpose of this amendment is to give the Medical Corps of the Army seven officers to every 1,000 enlisted men. That proportion is greater than the present one, and it is a proportion which the Surgeon-General of the Army recommended to the committee as being, in his opinion, sufficient to meet any demand which may arise.

In two important respects this language tends to mislead. First, in the bill as passed this proportion is not really maintained, because provision is made for its reduction in time of peace. Second, the statement in question would seem to imply that the proportion of 7 to 1,000 is intended to provide a margin of safety for emergencies. This is not the case. This proportion is not merely that which is sufficient to meet any demand; it is also, as experience has amply demonstrated, the absolutely necessary minimum for the safe

1. Medical Preparedness and the Army, editorial, THE JOURNAL A. M. A., Feb. 19, 1916, p. 575.

working of the service. In war a maximum of medical emergencies is the normal condition. The Medical Department has not only technical but also highly specialized functions. Army medical officers for the performance of these cannot be improvised on the outbreak of war. To plan deliberately for such a result would be to invite a disaster. If the proportion of seven medical officers to every thousand men enlisted is not established and maintained in time of peace, then on the outbreak of war the inevitable expansion of the ranks of the department will find it insufficiently manned by officers trained in army administration to eke out the technical knowledge of their new colleagues from the civil ranks of the profession.

MODERN BREAD AND DEFICIENCY DISEASES

Pellagra has been added to the list of diseases caused by the absence from the diet of substances which, while necessary to metabolism, are not included in the ordinary list of proteins, carbohydrates, fats and inorganic salts. In this list are several diseases differing markedly in their manifestations. It is therefore reasonable to suppose that the substances whose absence from the diet causes these diseases are not identical. It is by no means certain that these substances are even members of the same or of a related class, although it has become usual to refer to them as vitamins. Beriberi has been definitely attributed to the absence from an unbalanced rice diet of certain vitamins which are contained in the coatings of rice grains, but which are removed in the process of polishing. Whether there is any similar cause in the case of pellagra is still unknown. These considerations lend interest to a paper by Voegtlin, Sullivan and Myers[1] which has special reference to the vitamin content. These authors review the subject and bring up to date our knowledge in respect to maize (corn) and wheat flour. They show that modern methods of milling remove the bulk of the vitamins. Two facts of importance are brought out. First, the introduction of the highly milled flours has coincided with the great increase in the cost of such articles of diet as eggs, meat and milk. There has, therefore, been an increase in the proportion of flour consumed by the poorer classes and a decrease in the proportion of other articles which might have eked out its dietetic deficiencies. Second, the peculiarities of dough made from highly milled flours have caused the extension of the use of baking powders in the preparation of bread. It is a common practice in some places to use plain sodium bicarbonate as a baking powder. This substance, disengaging carbon dioxid at the temperature of baking, leaves the alkaline carbonate in the bread. The authors of the paper referred to report that their experiments indicate that sodium carbonate, in such circumstances, destroys the vitamins. This is not the case when the practice is followed of combining the use of sodium bicarbonate with that of buttermilk or of tartaric acid, which, by neutralizing the alkali, protects the vitamins. The investigations have not yet been carried far enough to determine whether these new and associated conditions, the use of highly milled flours and of sodium bicarbonate, have any causal relation with the extension of pellagra. The experimental evidence merely shows that as far as the production of disease is concerned, the case of corn bread and bicarbonate baking powder is similar to that of polished rice. In both instances polyneuritis develops when these foods are fed to fowls, in an unbalanced diet.

1. Voegtlin, Carl; Sullivan, M. X., and Myers, C. N.: Bread as Food, Pub. Health Rep., 1916, xxxi, 935.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

FLORIDA

Hospital Notes.—Members of the Dade County Medical Society have been informed by the chamber of commerce that there is available about $30,000 for the new city hospital lot. A bond issue to provide funds for the new hospital is under consideration.

State Board of Health Train.—The health train of the state board of health which is making a tour of the state reached Gainesville, March 25. The train is composed of three cars, the first of which is the living car for the accommodation of the representatives of the board; the second contains sleeping quarters for the special train crew, but the greater part of the car is devoted to the installation of models showing sewage disposal, the contamination of driven or open wells, a model dairy, the proper feeding and clothing of babies, open-air treatment of tuberculosis and the like, while the third car is devoted chiefly to display notices which carry in graphically worded sentences warnings and advice on sanitary subjects and disease prevention, together with the display from the Florida Dental Society.

State Antituberculosis Association Organized.—The Florida Antituberculosis Association was organized at Jacksonville, March 29, the following physicians being elected officers: president, Dr. Louis A. Bize, Tampa; secretary, Dr. Carroll H. Frink, Jacksonville; honorary vice president, Dr. Joseph Y. Porter, Jacksonville; member of the executive committee, Dr. Charles E. Terry, Jacksonville, and directors, Drs. Joseph Y. Porter, Jacksonville; Robert H. McGinnis, Jacksonville; Paul C. Perry, Jacksonville; Charles E. Terry, Jacksonville; Ralph N. Greene, Chattahoochee; Arthur P. Hunter, Fort Myers; Joseph Y. Porter, Jr., Key West; John B. Maloney, Key West; George B. Glover, Monticello; S. R. Mallory Kennedy, Pensacola; John D. McRae, Tampa; Louis A. Bize, Tampa; Grace L. R. Whitford, Ozona; Hiram Byrd, Princeton, and Mary B. Jewett, Florence Villa.

GEORGIA

Personal.—Dr. Henry R. Slack, LaGrange, has returned after war service in France.——Dr. Leon Izgur has returned after several months' service as marine surgeon in the Russian service.

State Sanatorium Located.—The state board of health has accepted the Franklin Springs property as a state sanatorium for the treatment of drug addicts under the recently enacted law, which set aside $10,000 to provide an establishment for this purpose. The property will immediately be put into condition to receive patients.

Health Bill Adopted.—The Ellis Public Health Bill has been adopted by the Dougherty County grand jury as a result of the recent tuberculosis and sanitary survey of Albany and the adjacent territory. A public health nurse has been appointed to act under the direction of a full time health officer who will soon be appointed.

New Plans for Grady.—At a banquet of the Atlanta Physicians' Club, April 4, the report regarding the Grady Hospital, approved by the Fulton County Medical Society, was adopted. This report suggests that the hospital be made a

750-bed hospital of which 600 shall be free beds; that one half of these free beds shall be at the service of the physicians of the city at large and the other half be used for teaching purposes.——Four living heirs of the late Joseph Hirsh have agreed to donate $10,000 for the erection of a nurses' dormitory for the hospital. This, with the $15,000 recently appropriated by the city council, will render it possible to go on at once with the foundation and first floor of the dormitory.

IDAHO

Personal.—Dr. Clifford M. Cline, Idaho Falls, has resigned as a member of the State Board of Medical Examiners.——Dr. Edwin O. Woods, Twin Falls, has succeeded Dr. A. Henry Dunn, resigned, as physician of Twin Falls County.——Dr. Clyde E. Watson has been elected city physician of Nampa.

The Rabies Situation.—The seriousness of the rabies situation in Idaho was discussed, April 7, at the office of the state board of health by Dr. Ralph Falk, Boise, secretary of the board, and Surg. Lunsford D. Fricks, U. S. P. H. S. Plans for a campaign against rabies are being taken up on the lines now being followed in Utah, Nevada and California.

ILLINOIS

School for Health Officials.—The secretary of the state board of health announces that a summer school for health officers in the state will be opened in Springfield in September for one week.

Personal.—Dr. Elmira Hertig, Galesburg, was seriously injured in a collision between bicycles, April 4.—The winter home of Dr. Orrin Maxson, Waukegan, in Florida, was destroyed by fire recently.——Dr. A. Edward Sherman, Aurora, has been commissioned first lieutenant, Medical Reserve Corps, U. S. Army.

Stolen Diplomas Come to Light.—Several months ago ten diplomas of the Marquette University School of Medicine, Milwaukee, were stolen. Three of these have reappeared, one being in the possession of August Steinlage; a second in the possession of Dr. Alfred Noble Gray, formerly of Worth, Ill., but more recently of St. Louis, and the third was held by Vincenzo Scalette of Chicago. The Missouri State Board of Health discovered two of these diplomas when examining the credentials of applicants for examination for state licensure, and one was found by the Illinois State Board of Health under similar circumstances. This board has a fourth diploma under investigation. The other six have not yet come to light. At the instance of the Illinois State Board of Health warrants were issued in the Municipal Court, April 18, for the arrest of two men on the technical charge of the operation of a confidence game.

Chicago

Hospital Chapel Dedicated.—The Deering Memorial Chapel, located in the Wesley Memorial Hospital, was dedicated, April 9.

To Improve Marine Hospital.—In a formal report to the Public Buildings Committee of Congress, the expenditure of $50,000 for improvements for the Marine Hospital is proposed. The improvements consist of repairs to the building and the rebuilding of the seawall and breakwater.

Society Lauds Sachs.—At a meeting of the Council of the Chicago Medical Society, April 11, resolutions were adopted on the death of Dr. Theodore B. Sachs "for by his untimely passing the medical profession not only of Chicago, but of the nation, has lost one of its most valued members."

Open Meeting of Institute of Medicine.—An open meeting of the Institute of Medicine of Chicago is announced for April 29, Recital Hall, Fine Arts Building at 8 p. m. Prof. William L. Tower of the University of Chicago will deliver an address on the "Fundamental Biologic Factors in the Evolution of Human Populations." Dr. William Healy of the Psycopathic Institute will speak on "The Eugenists and Medicopsychologic Problems."

Personal.—Dr. Justin L. Mitchell, who was operated on recently at the German Deaconess Hospital, has returned home convalescent.——Dr. Lewis J. Isaacs has recovered and resumed practice.——Dr. Duncan B. McEachern has been appointed chief of the Diphtheria Hospital.——Dr. Edward H. Oschner delivered an address before the Winnebago County Medical Society at Rockford, April 11, on "The Biochemistry of Tropical Application."

Dementia Research Work Soon to Begin.—The contract between the State Board of Administration and the Otho Sprague Memorial Institute for the establishment of a laboratory at the Chicago State Hospital for research work in dementia praecox has been signed, and the opening of the laboratory now awaits only the selection of a director. The medical director of the Sprague Memorial Laboratory is Dr. H. Gideon Wells of the University of Chicago.

IOWA

State Society Meeting.—The sixty-fifth annual meeting of the Iowa State Medical Society will be held in Davenport, May 10 to 12. The address in surgery is to be delivered by Dr. J. Rilus Eastman of Indianapolis, and that in medicine by Dr. Alexander Lambert, New York.

Personal.—Dr. George W. Banning, Davenport, has returned after a winter in Florida.——Dr. John D. Hullinger, Clinton, has been reelected president of the Beaver Island Fishing and Hunting Club.——Dr. Arthur L. Washburn, health officer of Oskaloosa, has resigned to accept a position in the City Fever Hospital, Edinburgh, Scotland.——Dr. Walter L. Bierring, Des Moines, was the guest of honor at a dinner given by the Fort Dodge Medical Society, March 28, and afterward delivered an address on "The Value of Digitalis in Insufficiency of the Heart."——Dr. Max W. Emmert, Des Moines, has accepted a position on the staff of the University of Nebraska, Omaha.——Dr. William L. Becker has been elected president and Dr. Eugene R. Lewis, vice president of the directors of the Independent School District of the City of Dubuque.

MASSACHUSETTS

The Harrington Lectures.—Dr. Milton J. Rosenau, director of the School for Health Officers, Harvard University and the Massachusetts Institute of Technology, has been appointed to give the Harrington Lectures at the University of Buffalo Medical School on May 30, 31, and June 1. Two lectures will be given on "Anaphylaxis" and the third will be on "Education for Public Health Service as a Career."

State Hospital Celebration.—Under the auspices of the board of trustees and with the approval of the state board of insanity, a twenty-year review of the work of the Monson State Hospital, Palmer, will be held, May 4. The morning session will be devoted to matters of general consideration, inspection of the department of health work, exhibits, demonstrations illustrating some of the papers read by title, preparations for the afternoon meeting, etc., including a summary of researches in epilepsy with especial reference to the institution.

Personal.—Dr. Walter B. Cannon, Boston, gave a lecture before the section on general medicine of the College of Physicians of Philadelphia at Thompson Hall, April 20, on "An Explanation of Some Disorders Supposed to Have An Emotional Origin." The lecture was illustrated by lantern slides and was based on recent laboratory work in the conditions of activities of the glands of internal secretion, especially in relation to the sympathetic nervous system and emotions.——Dr. Horace K. Boutwell has been appointed district physician of Brookline, succeeding Dr. George H. Lawrence, resigned.

Eligibles for Health Officers.—Dr. Allen J. McLaughlin, commissioner of health of Massachusetts, announces that, May 25 and 26, the state department of health will hold a competitive examination for the purpose of establishing an eligible list of candidates for state district health officers under the department. The written examination will be held May 25 and 26 in the examination room of the Civil Service Commission, State House, Boston. The oral and practical examinations will be held on dates and at places to be announced at the time of the written examination. Persons possessing the necessary qualifications and desiring to enter the competitive examination should communicate with the state commissioner of health at Boston, at once.

MICHIGAN

Appreciation of Dr. Baker's Work.—At a meeting of the Tri-County Medical Association at Kalamazoo recently a resolution of appreciation of the labors of Dr. Henry B. B. Baker, for many years secretary of the state board of health, calling attention to the pioneer services which he rendered along the lines of preventive medicine, was adopted and a copy was sent to Dr. Baker, who is now living on a fruit farm in Allegan County.

Personal.—Dr. George H. Lynch has been reelected mayor of Big Rapids.——Dr. George A. Holliday has been elected

full time health officer of Traverce City.——Dr. Leo C. Donnelly, city physician in Detroit in 1910 and 1911, sailed for France on the *Espagne*, April 8, to join a field hospital staff at St. Valérie-en-Caux.——Dr. Carl A. Mitchell has been elected an alderman of Benton Harbor.——Dr. Emory J. Brady, assistant superintendent of the Newberry State Hospital, newly appointed superintendent of the Myron-Stratton Home, Colorado Springs, assumed his new duties April 1.——Dr. Rosco G. Leland, Kalamazoo, who has been ill at his home, has recovered and resumed work.——The salary of Dr. Christopher G. Parnall, Jackson, full time health officer of Jackson, has been fixed at $3,600.——Dr. Victor C. Vaughan, dean of the Uuniversity of Michigan, Ann Arbor, lectured at Menominee, April 10, on "The Influence of Disease on Civilization."——Dr. Louis T. O'Brien, Grand Rapids, has joined a British expeditionary force which is soon to leave Toronto for the front.——Dr. Robert A. Walker, Menominee, who has been suffering from septicemia for two months, has recovered and resumed practice.

MINNESOTA

Personal.—Dr. Ernest T. F. Richards, St. Paul, who has been working with a Harvard unit in France for several months, has returned home.——Dr. Edward E. Webber has been elected president of the village of Chisholm.——Dr. M. Alpheus Burns has been elected president of the village of Milan.——Dr. Julian A. DuBois, Sauk Center, is reported to be seriously ill.

NEW JERSEY

Society One Hundred and Fifty Years Old.—The Medical Society of New Jersey, the oldest state medical society in the United States, is making elaborate arrangements for its one hundred and fiftieth anniversary meeting which will be held in Asbury Park, June 20 to 22. Invitations have been extended to the presidents of every state medical society in the United States and the president elect of the American Medical Association. An attendance of more than 1,000 is expected. Dr. David C. English, New Brunswick, is chairman of the committee of arrangements. Headquarters will be at the New Monterey Hotel.

NEW YORK

To Compel Physicians to Seek Laboratory Assistance.—The Public Health Council of the state department of health at its meeting, April 4, passed the following resolution:

> It is the judgment of the Council that laboratory facilities in the state, both within and without the department, being now adequate to make diagnostic examinations in diphtheria, typhoid fever and tuberculosis, it is feasible and desirable for the department to enforce the sections of the Sanitary Code relating to prompt and uniform notification in these diseases by such means as will compel physicians at once to seek laboratory assistance in diagnosis in all doubtful cases.

Personal.—Dr. James V. May, Albany, at present chairman of the New York State Hospital Commission, has been elected superintendent of the Grafton State Colony for the Insane at Worcester, Mass., to succeed Dr. H. Louis Stick, resigned.

New York City

Dinner to Jacobi.—The board of directors of the Hospital for Deformities and Joint Diseases announces that a dinner will be given to Dr. Abraham Jacobi at the Ritz Carleton Hotel, May 3, at 7 o'clock. Dr. Levi Strauss is chairman of the dinner committee.

Baby Week.—The mayor's committee has designated the week May 6 to 13 as "Baby Week." The general committee appointed by the mayor to conduct the campaign is headed by Dr. Haven Emerson. The active work of the campaign will be undertaken by a central committee presided over by Dr. Alfred E. Shipley, Brooklyn.

Personal.—According to newspaper dispatches, Dr. Harry Plotz of Mount Sinai Hospital has been awarded a medal without swords by the Bulgarian government in recognition of his services in aiding to stamp out typhus fever in Serbia. This is one of the highest honors which it is possible to confer on a Bulgarian army surgeon.

Initiating the Mosquito Campaign.—The Interstate Mosquito Committee recently met in the offices of the health commissioner to consider the question of mosquito extermination in the vicinity of New York. It was announced that Forrest Hills had raised over $1,000 and would engage an expert to organize a campaign against the mosquito. It was also announced that the Outran Swamp, which is the chief source of annoyance to the people of Jamaica and Forest Hills, is to be drained by the construction of a temporary sewer; that Essex County expects to employ fifteen college students to continue the work of extermination begun last summer and that a "canned lecture" together with lantern slides, is being prepared by the New York Association for Improving the Condition of the Poor and which will be loaned free of charge for use by societies, churches, civic organizations, etc. The Interstate Committee is seeking financial aid in its campaign and has adopted the slogan, "A Dollar Kills a Million."

NORTH DAKOTA

Unlicensed Physicians and Midwives.—State's Attorney Langer has started a campaign against unlicensed physicians and midwives in Morton County. Two physicians have been arrested and released under bail and nine midwives have been slated for arrest unless they secure licenses without delay.

Personal.—Dr. William G. Brown, Fargo, has returned from a two months' trip to the Pacific Coast, the South, Chicago, and Rochester, Minn.——Dr. William L. Gordon, Washburn, is reported to be ill in a hospital at Chicago.——The office of Dr. Hermann R. Gundermann, Monango, was destroyed by fire recently with a loss of $600.

OKLAHOMA

Personal.—Dr. Emory S. Crow, Olustee, who was operated on for appendicitis recently, is convalescent.——Dr. James A. Ryan, Oklahoma City, gave a farewell dinner to physicians of Oklahoma City recently, at which he announced his retirement from the practice of medicine.——Dr. Oliver Bagby, Vineta, recently underwent operation at a hospital in St. Louis.——Dr. Joseph W. Bone, Sapulpa, is recovering after a surgical operation.——Dr. Leigh F. Watson, Oklahoma City, recently opened a sanatorium for the treatment of goiter and diseases of the glands of internal secretion.

New District Society.—Physicians from Cotton, Comanche, Kiowa, Greer, Harmon, Tillman and Jackson counties met at Altus, April 6, pursuant to the call of Dr. Garraed P. Cherry, Mangum, and organized the Southwestern District Medical Association of Oklahoma, electing the following officers: president, Dr. Garraed P. Cherry, Mangum; vice presidents, Drs. William T. Ray, Gould; Lang A. Mitchell, Frederick; Thomas J. Horsley, Mangum; Louis A. Milne, Lawton; George O. Webb, Temple, and Logan H. Huffman, Hobart, and secretary, Dr. General Pinnell, Lawton. The next meeting will be held in June at Lawton.

PENNSYLVANIA

Conference of Industrial Physicians.—The second conference of physicians engaged in industrial practice will be held at the state capitol, Harrisburg, May 18, under the auspices of the Division of Industrial Hygiene and Engineering of the Department of Labor and Industry. Dr. Francis D. Patterson, Philadelphia, chief of the division, will preside. The program considers many important subjects dealing with the industries, and at the close of the afternoon session moving pictures dealing with safe and unsafe practices will be exhibited.

Personal.—Dr. Calvin J. Otto, Allentown, was the guest of honor at a banquet, April 8, given by his fellow members of the Lehigh County Medical Society.——Dr. Daniel P. Gerberich, Lebanon, senator from the Seventeenth District, has made formal announcement of his retirement from public life.——Dr. Charles McDonald, who has been on duty as director of Unit E of the American Red Cross at Budapest, Hungary, has returned and has been made chief surgeon of the Remington-Armour Company at Eddystone.——Dr. Bertine S. Erwin, Mauch Chunk, who has been seriously ill, is reported to be convalescent.——Dr. D. Leonard Pratt, Towanda, has been placed in charge of the State Tuberculosis Dispensary of the Forty-Fourth District, which includes all of Bradford County.

Philadelphia

Pathological Society Address.—The annual address of the Pathological Society of Philadelphia will be delivered by Dr. William H. Park, New York, at the College of Physicians and Surgeons, Twenty-Second and Chestnut Streets, April 27, at 8:30 p. m.

Dr. Hare Honored.—A demonstration of admiration and affection was rendered to Dr. Hobart Amory Hare, April 11, by the faculty and student body of Jefferson Medical College, in commemoration of his twenty-fifth anniversary

as a member of the college faculty. A reception, which was attended by several hundred students, members of the faculty, and professional friends, was held in the hospital amphitheater. Dr. Francis X. Dercum, professor of nervous and mental diseases, acted as chairman, and a beautiful bronze statute of Mercury, by Pigalle, was presented by the students. The presentation address was made by Dr. John Chalmers Da Costa, professor of clinical surgery, and a memorable address of appreciation and acceptance was made by Dr. Hare.

Personal.—Dr. Edward Martin has been chosen chairman of the committee on military training of the board of education.——Dr. George E. McGinnis has been appointed by Governor Brumbaugh a captain of the medical corps of the National Guard and assigned to a Philadelphia company.——Dr. Wilmer Krusen, director of the department of health and charities, was guest of honor at the regular quarterly meeting of the Medical Club of Philadelphia, April 28.——Dr. Edwin B. Miller has been appointed otologist, rhinologist and laryngologist to the Roosevelt Hospital.——Dr. John A. Brophy has been elected ophthalmologist to St. Agnes' Hospital.——The Ninth Public Lecture of the College of Physicians was given, April 15, by Surg. Archibald M. Fauntleroy of the U. S. Navy. His subject was the "Dangers and Duties of the Hour."——Dr. Alonzo E. Taylor, Rush professor of physiologic chemistry in the University of Pennsylvania, sailed from New York for Europe, March 11, on the *Rotterdam* as an appointee of the War Department. He will engage in Red Cross work as an attaché of the American embassy, Berlin.

University Alumni to Elect Trustees.—Control of the management of the University of Pennsylvania has been delegated to alumni of that institution by the action of the trustees in voluntarily adopting an amendment to the university statute, providing that all vacancies on the board shall be filled by election from nominations made to the trustees by graduates. This action transfers the general administrative policy of the university from the hands of the trustees to an alumni of more than 16,000, scattered all over the world. Under the amendment, trustees of the university will advise the board of managers of the General Alumni Society of any vacancy which may occur on the board. The board of managers of the Alumni Society then will select not less than six persons from whom a selection of three will be made by the board of trustees. These three will be returned to the alumni board and ballots containing their names will be circulated to all Pennsylvania graduates. The board then will elect to membership the person who shall have received the highest number of votes. The resolution provides that unless a minimum of 4,000 votes is received the trustees may disregard the result of the election. This clause, it was pointed out, is to insure the general interest among the alumni in the election.

TENNESSEE

Personal.—Dr. Ernest M. Ragsdale, Santa Fe, has been appointed superintendent of the East Tennessee Hospital for the Insane, Bearder, succeeding Dr. Michael Campbell.——Dr. George F. Aycock has succeeded Dr. James M. Oliver as superintendent of the Davidson County Tuberculosis Hospital, Nashville.

Antituberculosis Camp Established.—An emergency antituberculosis camp has been established by the Associated Charities at Knoxville, in a pine grove on the ridge near Clinton Pike, west of the New Gray Cemetery. A pavilion for a family of four has already been erected on this site. The tract of land is sufficient for the erection of enough tents for the accommodation of all the cases of tuberculosis in Knoxville, but the Associated Charities wish it understood that the camp is only to be temporary during the development of the East Tennessee Sanatorium on Tazewell Pike, 7 miles east of Knoxville.

State Association Meeting.—The eighty-third annual meeting of the Tennessee State Medical Association was held in Knoxville, April 4 to 6, under the presidency of Dr. Edward C. Ellett, Memphis. Nashville was selected as the next place of meeting, and the following officers were elected: president, Dr. Charles N. Cowden, Nashville; vice presidents, Drs. Cawood J. Carmichael, Knoxville; John T. Moore, Allgood; and John L. McGehee, Memphis; secretary, Dr. Olin West, Nashville (reelected); and delegates to the American Medical Association, Drs. Samuel R. Miller, Knoxville; and Perry Bromberg, Nashville (reelected). A telegram was sent to the American Medical Association at the afternoon meeting on April 6 conveying the good wishes of the association and pledging the national association every possible help in the fight it is making on fake doctors and "patent medicines."——At the meeting of the eye, ear, nose and throat section of the association, April 3, Dr. Charles Huff Davis, Knoxville, was elected chairman, Dr. Alexander B. Dancy, Jackson, vice chairman, and Dr. Edwin Lee Roberts, Nashville, secretary.

TEXAS

Personal.—Dr. Lawrence W. Hollis, Jr., Abilene, has been appointed assistant state health officer at the port of Galveston, succeeding Dr. Lane B. Cooke, whose station has been changed to Vera Cruz, Mexico.

Course for Health Officers.—The State Medical College, Galveston, announces that the summer course for public health officers will be held at the Medical College, May 12 to 26, immediately following the meeting of the State Medical Association of Texas.

Typhus Fever.—During February typhus fever was reported to the state board of health in El Paso, Kinney, Maverick, Webb, Frio and Bexar counties. This invasion is following the main lines of travel from the border to the interior of the state and the cases have been confined almost exclusively to Mexicans of recent entry. Up to March 15 no new points of infection had been reported excepting in Jones and Hays counties.

CANADA

Vaccination Order Issued.—The quarantine of the Amherstburg Unit of the Ninety-Ninth Overseas Battalion, imposed on account of an outbreak of smallpox in the barracks, was removed, April 4. Altogether twenty cases were reported.

University News.—The board of governors of the Western University, London, Ont., has completed the purchase of a large farm near that city for the erection of a new university. The location consists of 100 acres overlooking London. Building operations will not be commenced until the end of the war, but plans will be prepared and the grounds laid out preparatory for actual operations as soon as the war terminates.——Queen's University, Kingston, Hospital Unit, which has been located in Cairo, Egypt, is going to France instead of England.

Personal.—Dr. Alfred Thompson, M. P., Dawson, Yukon, has been appointed by the government of Canada as superintendent of the Canadian Military Hospitals in Canada.——Dr. Charles A. Temple, Toronto, has been appointed medical officer of the Eighth Artillery Brigade, with the rank of captain.——Dr. Waring G. Cosbie, Toronto, has been appointed medical officer of the Fifty-Eighth Battalion at Bramshott Camp, England.——The Medical Officer of Health, Hamilton, Ont., Dr. James R. Roberts, who returned from active service in the Mediterranean some weeks ago, still continues in ill health, and has been allowed additional leave of absence.——Dr. J. L. Wright, a graduate of the University of Toronto in 1905, and who has been practicing in western Canada, has been appointed surgeon-major to the One Hundred and Fourth Battalion.——Dr. Allan Kinghorn, a graduate of the University of Toronto, 1904, has been appointed senior medical officer of the medical forces in Rhodesia, West Africa.——Dr. Forbes E. Godfrey, Mimico, a member of the Ontario Legislature, will accompany Premier Hearst on a trip to the West Indies.

GENERAL

The Eradication of Malaria.—At a meeting of the West Tennessee Antimalaria Congress held in Memphis, health officers of Tennessee, Arkansas and Mississippi united in the campaign for the eradication of malaria from the South, and elected the following officers: president, Dr. William Krauss; vice president, Dr. James L. Andrews; secretary, Eugene Frederick Turner, all of Memphis, and director of field work campaign, Senior Surg. Joseph H. White, U. S. P. H. S.

Wine of Cardui Suit.—The extent of the report of the Wine of Cardui suit is such that it is impossible to give the complete report, up to date with each issue. Since the completion of the material which appears in the issue for this week, as we go to press, the following have testified for the American Medical Association: Dr. J. Clarence Webster, Chicago; Dr. A. J. Reynolds, Mr. M. H. Bonner and Mr. Paul Turner, Fort Necessity, La.; Dr. Joseph B. Tanner, Benevolence, Ga.; Dr. Edward E. Montgomery, Philadelphia; Dr. C. K. Maxwell, Kellyton, Ala.; Dr. Samuel Worley, St. Augustine, Fla.; J. K. Webster, Athens, Texas; Dr. A. A. Small, Chicago; Dr. C. A. L. Reed, Cincinnati, and Dr. Wm. E. Kay, Maplesville, Ala.

Medals for Army Medical Museum.—The Army Medical Museum possesses a valuable collection of medals relating to medicine which was started and fostered by the late Dr. John S. Billings, and it is highly desirable that this collection should be added to and completed, so far as possible. The assistance and advice of physicians who are collectors of medical medals is respectfully solicited. The museum appropriations will avail to purchase individual medals which are not in the collection, the purchase of private collections, or of individual items in them, will be carefully considered, and private donations of separate medals or groups of medals will be most welcome and will be duly credited to the donors, and the transmission of catalogs of medals for sale is requested.

Medico-Psychologists Hold Meeting.—The seventy-second annual meeting of the American Medico-Psychological Medical Association was held in New Orleans, April 4 to 7, under the presidency of Dr. Edward N. Brush, Towson, Md. New York was selected as the place of meeting for 1917, and the following officers were elected: president, Dr. Charles G. Wagner, Binghamton, N. Y.; vice president, Dr. James V. Anglin, St. John, N. B., and secretary-treasurer, Dr. Henry C. Eyman, Massillon, Ohio (reelected). The prize offered by the association for the best exhibit from a state hospital was awarded to the East Louisiana State Hospital for the Insane, and that for the best exhibit by a private institution to the Shepard and Enoch Pratt Hospital, Towson, Md. The Danvers State Hospital, Massachusetts, was awarded a prize for the best art brass and leather work, the Medfield (Mass.) State Hospital a prize for the exhibit showing the greatest variety of employment, and the Nebraska State Hospital, Lincoln, a prize for the best water color drawings.

Service Officers in Medical Associations.—A joint resolution was introduced into the Senate of the United States, April 11, by Mr. Works, which makes it unlawful for any member of the Public Health Service to become a member of any medical or private health association. This resolution was read twice and referred to the Committee on Public Health and National Quarantine. It reads as follows:

WHEREAS, The American Medical Association is a national organization of physicians and surgeons of one school of medicine only and intended to advance the personal and private interests of its members; and

WHEREAS, One of the objects of said association actively and aggressively prosecuted is to procure legislation, state and national, in the interest of the school of medicine represented by it and against all others; and

WHEREAS, The Public Health Service of the United States is intended to represent all classes of people of all medical or nonmedical beliefs in national and interstate affairs; and

WHEREAS, The Surgeon-General of the Public Health Service has been elected president of said association and other officers of the Service have become members thereof; and

WHEREAS, It is believed that the best interests of the Public Health Service and of the people require that its officials and employees be free from influence or control by any school of medicine or mode of healing; now, therefore, be it

Resolved, By the Senate and House of Representatives of the United States of America in Congress assembled, that it shall be unlawful for any officer or employee of the Public Health Service of the Government to be or become a member or officer of, or in any way connected with, any medical or private health association or organization of any kind.

FOREIGN

Unexpected Red Cross Funds Returned.—J. M. Poyer, governor of American Samoa, has returned to the American Red Cross $878.02 of the $2,000 contributed last year for relief of the hurricane sufferers in the Manua group of islands. The people of Manua express profound gratitude for and sincere appreciation of the aid extended during their period of distress.

Deaths in the Profession Abroad.—Sir Alexander Russell Simpson, M.D., Edinburgh, 1856; F.R.C.P., Edinburgh; F.F.P.S., Glasgow, 1865; eminent as an obstetrician and gynecologist; emeritus professor of midwifery and diseases of women and children and formerly dean of the Faculty of Medicine of the University of Edinburgh; a prolific contributor to the literature of gynecology and obstetrics; a member and former officer of many learned societies; an honorary fellow of the American Gynecological Society and a corresponding fellow of the Boston Gynecological Society; aged 80; was knocked down by a motor car in Edinburgh, April 6, and died from his injuries a few hours later.——X. Delore, a prominent French surgeon, obstetrician and pediatrist, formerly a member of the faculty of the University of Lyons, aged 89. One of his four sons is continuing, as a surgeon at Lyons, his father's career.——M. A. Fargas, professor of gynecology at the University of Barcelona.——L. Guedea, professor of surgery at the University of Madrid and senator, aged about 60.——G. Menini, lecturer (libero docente) in pathology at the University of Florence, director of the clinical laboratory, and chief of a sanitation mission, sent recently by the government to Sardinia and Albania, aged 40.——P. Condulmer, chief of the school inspection service at Bologna, recently succumbed to a disease contracted in medical work on the firing line in Italy. The city council of Bologna has already founded a prize as a memorial to him to be awarded annually to some indigent child as a reward for cleanliness.

Women's Medical College and Hospital Opened in India.—The first Women's Medical College and Hospital in India was recently opened at Delhi. It has been established in memory of Lady Hardinge, wife of the Viceroy of India, who had a deep and abiding interest in the welfare of Indian women and was untiring in her efforts to found this institution for their benefit. In the presence of a representative audience, including Indian princes and leaders of Indian and European society, Lord Hardinge, as his last official act, opened the college and hospital, of which the cornerstone was laid by Lady Hardinge two years ago. The institution is to be known as the Hardinge Women's Medical College. To the college and hospital there is to be attached a training school for nurses. The college will provide for 100 women students; the hospital will have 150 beds for women, and the training school will be able to accommodate twenty-five qualified nurses and the same number of probationers. The hospital will have separate wards for Christian, Hindu, Mohammedans, Sikhs and Parsees so that every care will be taken to avoid conflict with religious and caste rules. The college building contains a central amphitheater and a hall, a library, laboratories for chemistry, physics, physiology, anatomy, pathology and bacteriology and the necessary lecture rooms. A dispensary and hospital for the treatment of outdoor patients will be added to the hospital. Bungalows will be provided for the women professors and there are separate units in the hospital, each complete in itself, containing family wards, two general wards, two small separate wards and a central building for demonstration and teaching. Each professor will have her separate and complete clinic and her own clinical laboratory, demonstration room and consulting room, with facilities for nursing. The institution is costing $2,000,000, more than one half of which was given by individuals and the remainder by the Province of the Panjab as its tribute to Lady Hardinge's memory. It is hoped that this institution may aid materially in decreasing the very high mortality of mothers and infants which at present obtains in India.

WAR NOTES

Clearing House in Paris.—The depot in Paris, at which surgical dressings sent from America are received, is now issuing supplies to 380 hospitals. During March the Boston branch of the Surgical Dressings Committee shipped 299 cases containing 317,974 surgical dressings.

Aid for Soldiers Blinded in War.—The Permanent Blind Relief War Fund at 590 Fifth Avenue, New York, is appealing throughout the United States for aid for the thousands of French, Belgian and British soldiers who have been blinded in the European War and cannot support themselves. The plan of the fund is to educate these blinded men in practical trades in which they can support themselves and help their families.

Surgery in a Dugout.—The following is from an article in the *Outlook* by Mr. Herbert Ward, the artist and sculptor, who has been connected with one of the English ambulances in France and is now in this country lecturing:

> "Night before last, in an ambulance hut near the front, during a cannonade, I first saw a certain doctor. It was in a dimly lit dugout. A man's figure lay on the operating-table, and an attendant held a candle to enable the doctor to see. It was a grave operation and not a thing to talk about. The doctor was intent on his work. An earnest, black-bearded man with bare arms, his hands moved quickly and he gave an impression of concentrated energy. The usual surroundings were there, and a few rugged, dirty brancardiers (so-called from the fact that they carry brancards, the litters or stretchers) were standing by, ready to bear the patient away.
>
> "Last night, almost at the same hour, I was in the same dugout. The noise of the guns was deafening, and there had been many casualties. In the dugout there was again the man with the candle, lighting the surgeon at his work. But this time the surgeon was a clean-shaven man and the patient was the black-bearded doctor himself. He is dead now. . . .
>
> "My black-bearded doctor friend, who, after performing his operation two nights before, had clinked glasses with me as we drank to each other's health in bad lemonade, had been mortally wounded. That makes a total of nineteen doctors killed at this particular place."

PARIS LETTER

PARIS, March 23, 1916.

The War

THE INTERNMENT IN SWITZERLAND OF SICK OR WOUNDED PRISONERS OF WAR

The negotiations, begun some time ago, on the subject of internment in Switzerland of French and German prisoners of war who are not so seriously injured as to be subject to exchange, has just resulted in a new agreement between the French and German governments, which defines the list of diseases and deformities entitling prisoners to such exchange: (1) tuberculosis of the respiratory organs, even in its early stages; (2) tuberculosis of the other organs (skin, bones, joints, digestive organs, urinary passages and sexual organs, etc.); (3) chronic constitutional diseases, chronic affections of the blood and skin and chronic intoxications (malaria, diabetes, leukemia, pernicious anemia, chlorin, carbon monoxid, lead and mercury poisoning); (4) chronic diseases of the respiratory passages (stenosis, pronounced emphysema, chronic bronchitis, asthma, pleurisy); (5) chronic diseases of the circulatory organs (cardiac lesions and diseases of the cardiac muscles, aneurysm, pronounced varices, arteriosclerosis, etc.); (6) chronic affections of the digestive organs necessitating a special long-continued diet; (7) chronic diseases of the urinary and sexual organs (chronic nephritis, vesical calculus, hypertrophy of the prostate); (8) chronic diseases of the central and peripheral nervous system (hysteria, epilepsy, hyperthyroidism, chronic sciatica, paralysis, cramps and other serious nervous diseases); (9) chronic diseases of the organs of special senses (glaucoma, inflammation of the cornea, iris and choroid, etc., chronic otitis media, etc.); (10) blindness of an eye if the remaining eye does not possess normal vision; (11) bilateral deafness; (12) chronic and extensive diseases of the skin (cutaneous ulcers and fistulas); (13) chronic articular rheumatism and gout producing visible deformity; (14) malign or benign neoplasm producing marked functional disturbances; (15) general pronounced condition of feebleness due to age or disease; (16) serious syphilitic manifestations producing functional disturbances; (17) loss of a limb in officers and noncommissioned officers; (18) ankylosis of important joints, pseudo-arthrosis, shortening of limbs, muscular atrophies, paralysis due to firearms and presumably of long duration; (19) all conditions resulting from diseases or wounds not included in the previous list, but producing complete unfitness for military service for at least a year (mutilation of the face or jaw, sequelae of trephining, torpid wounds); (20) isolated cases not coming under any of the foregoing classes but urgently demanding in the opinion of the commission, internment in Switzerland, and presenting the same seriousness as those of the other categories.

The following are excluded: (1) all serious nervous and mental diseases necessitating treatment in a special establishment; (2) chronic alcoholism; (3) all transmissible diseases during the period of infectivity.

In order to make sure of the entirely correct execution of the agreement, commissions of Swiss physicians are now visiting all the camps of German and French prisoners. The prisoners are informed of the coming of the commission several days in advance, and it is their privilege to present their special disabilities before it.

PROSTHETIC APPLIANCES FOR THE MUTILATED

Ever since the war began, the medical service has been compelled to organize promptly and practically the supply of suitable prosthetic devices for the wounded. The first effort to organize consisted in installing rapidly an orthopedic center in each military region. The mutilated were removed to this center as soon as their wounds were cicatrized. There an outline of the case was drawn up which permitted the most suitable orthopedic appliances for that particular mutilation to be prepared as rapidly as possible. The distribution and selection of apparatus have been perfected gradually and new improvements are being studied. The undersecretary for the medical service has formed a committee to study orthopedics the members of which are prominent physicians, surgeons and orthopedists. The committee believes that the interests of the government, like those of the individual, require that the wounded be enabled to take up their former occupation as far as possible. According to the individual case, therefore, the committee has decided that the orthopedic appliances selected shall be such as permit the mutilated man to resume his former position as well as possible. A bank clerk or a waiter, for instance, who has lost a leg, will receive an artificial limb which will conceal the deformity. The farm laborer on the other hand, or a workman, who needs a solid, reliable limb, will receive a wooden leg which will permit him to follow an occupation necessitating the use of strength. The apparatus furnished will be repaired and renewed at the expense of the government during the whole life of the wounded man.

To meet increasing needs, the government has founded factories for the construction of prosthetic appliances at Saint Maurice near Paris, at Lyons, at Bordeaux and at Montpellier in which the mutilated men are employed, thus giving some of them a chance to follow a new occupation.

BRITISH AMBULANCES AT VERDUN

For about eight days, automobile ambulances of the British Red Cross and of the Order of St. John have aided in the transportation of the wounded at Verdun. These vehicles formed a part of a group of seventy of which the equipment and upkeep have been guaranteed by British coal mine owners and coal miners. Distributed among the Vosges and the Meuse, the British ambulance sections constitute an autonomous formation with their trucks, supplies of fuel, inspection cars, repair shops, etc. Their depot is at Bologne-sur-mer.

LONDON LETTER

LONDON, March 27, 1916.

The War

THE HEALTH OF MUNITION WORKERS

The commission appointed by the government to investigate the health of munition workers has issued another report. It is pointed out that our national experience in modern industry is longer than that of any other people. This has shown that false ideas of economic gain, blind to physiologic law, must lead, as they led through the nineteenth century, to vast national loss and suffering. It is certain that unless our industrial life is to be guided in the future by the application of physiologic science to the details of its management, it cannot hope to maintain its position hereafter among some of its foreign rivals, who already in that respect have gained an advantage. Proper attention earlier in the war to the need for weekly rest would have prevented a large part of the diminished capacity that has been allowed to appear, and would have averted much costly and wasteful expenditure on imperfect work. In many cases, perhaps in almost all, in which staleness is well marked, or has even been advanced to definite sickness, a single "day off," given occasionally at the right time, would have avoided much wasteful reduction of capacity, and in the worst cases the total loss of many days of work. In regard to special industrial diseases, operatives employed in the manufacture of the high explosive, trinitrotoluene, have been found affected with unusual drowsiness, frontal headache, eczema and loss of appetite. Generally the symptoms are at first slight, but if the exposure is continued, the symptoms tend to become more severe, while in a few cases profound jaundice with danger to life has supervened, and even death has resulted. Tetrachlorethane, a noninflammable liquid, which has a smell like chloroform and is a powerful anesthetic, leading to death, forms an ingredient of the "dope" varnish applied to aeroplanes. Several cases of poisoning have occurred among the workers, and in some jaundice with fatal termination has been observed. An apparently effective varnish has been found which does not contain the poisonous chemical, though, unfortunately, the supply of its ingredients is at present insufficient to meet the demands.

THE RECRUITING OF THE PROFESSION FOR MILITARY SERVICE

A conference of the local medical war committees in the north of England has taken place at Leeds. Dr. Cox, medical secretary of the British Medical Association, gave an address in which he said that the object of the meeting was to enlist enthusiasm so as to make the enrolment scheme a success. The method of obtaining recruits for the army medical corps which had been used up to now would not do for the future. Sections of the profession had been reached which found it extremely difficult to give up civil work, and therefore closer organization was required. No alternative to enrolment had been suggested except compulsion, which could not be applied to the medical profession alone. Compulsion, though it would render the task of the profession easier by insuring that no man should escape doing his duty, would only remove

the smallest of the profession's difficulties. The local committees would still be faced with the problems of taking the right men in the right order, or organizing the medical work of the district so as to distribute the burden on those remaining as equally as possible, and of protecting the interests of those who went. The enrolment scheme was an attempt to organize the medical profession by the medical profession for the good of the nation. The profession could do this particular work much better for itself than any state department. It was to the advantage of the profession to organize itself, and thus see that local difficulties were dealt with by people who knew those difficulties. It would not be fair unless the great majority of the men enrolled, but the central committee had given its promise that it would not victimize the public-spirited men who enrolled by proceeding to call up if the response was inadequate. What should be considered an adequate response could not be settled until the total number of men to be dealt with was known, and that could not be ascertained until the local committees had eliminated from their lists those ineligible for enrolment. If the scheme were a success it would be fair, because it would insure that all the men (with exceptions, who could always be relied on not to help in any organized scheme) were available for doing their country's work whether in the army or by remaining at home. The fairness of the scheme lay largely in the fact that it was to be worked by the cooperation of local committees which would bring to bear local knowledge, and a central committee which could be relied on to take a large and impartial view. The scheme was economical because it would form a reserve for the army medical corps which could be drawn on as wanted, and thus the director-general, instead of keeping up a constant demand in case the supply might run short, might well be content to wait until he was certain that he needed more men, and then only to ask for the minimum number required, knowing that the men were there when wanted.

VITAL STATISTICS AND THE WAR

As might be expected, the war has exercised a profound effect on the vital statistics of this country. The decline in the birth rate, which has been so frequently recorded in previous letters, has been accentuated. The births registered in the fourth quarter of 1915 correspond to a rate of 19.5 annually per thousand of the population. This rate is 4.6 per thousand below the mean birth rate in the ten preceding fourth quarters, and 2.7 below the rate in the corresponding period of 1914; it is the lowest birth rate recorded in any quarter since the establishment of civil registration. The natural increase of population in England and Wales last quarter by excess of births over deaths was 46,368, against 87,995, 89,045 and 77,394 in the fourth quarters of 1912, 1913 and 1914, respectively. The deaths registered in the same quarter correspond to an annual rate of 14.6 per thousand persons living; this rate is 0.3 per thousand above the mean rate in the ten preceding fourth quarters, and 0.7 per thousand above the rate in the fourth quarter of 1914. During the year 1915 there were 814,527 births and 562,326 deaths registered in England and Wales. The natural increase of population, by excess of birth over deaths, was, therefore, 252,201, the average annual increase in the preceding five years having been 378,360. The number of persons married during the year was 720,052. The marriage rate was 19.3 persons married per thousand of the population, which is 3.5 per thousand above the rate in 1914, and higher than the rate in any other year on record. One of the phenomena of the present time is the war wedding. The greater part of the young men of the country have joined the army and often marry before leaving for the front. The reason generally appears to be financial. If they join the ranks their wives are entitled to separation allowances, and if they are killed to pensions.

In the better classes, from which the officers usually come, the desire that their fiancées shall succeed to their property is another motive. Compared with the average in the ten years 1905-1914, the marriage rate in 1915 showed an increase of 3.9 per thousand. The birth rate was 21.8 per thousand of the population, which is 1.8 per thousand below the rate in 1914, and lower than the rate in any other year on record. Compared with the average in the ten years 1905-1914, the birth rate in 1915 showed a decrease of 3.6 per thousand. The death rate in 1915 was 15.1 per thousand, which was 1.2 per thousand above the rate in 1914. Compared with the rate in the ten years 1905-1914, the death rate in 1915 showed an increase of 0.7 per thousand.

BUDAPEST LETTER

Budapest, April 7, 1916.

The War

MEDICAL EXAMINATION OF WAR PRISONERS IN AGRICULTURAL WORK

The medical control of prisoners lent by the ministry of war for agricultural purposes is regulated by orders issued by the ministry of home defense and the ministry of agriculture. The former issued an order that no more than 200 prisoners should be lent out to one employer. It is the duty of the county magistrates to verify that at the place of the working there are no epidemics or contagious diseases. They decide whether or not the quartering of the prisoners is satisfactory, whether provision is made as to the removal of dirt, feces, etc., and whether there is plenty of wholesome water at the disposal of the prisoners. In cases of industrial accidents, the employer has to provide a certificate for the prisoners, in order that after their return to their own country they shall be able to realize their claims for pensions. According to the order, the commander and the chief medical officer of the prison camps are personally responsible for only healthy prisoners being sent out of the camp.

The minister of agriculture issued the following order: Prisoners must not leave the camp before three weeks' segregation and medical observation. When they arrive at their destination, the employer is obliged at his own expense to have all prisoners examined by district medical officers. During the period of working he has to have them examined by a medical man once every fortnight, and if necessary, oftener. The arrival of the prisoners is to be reported to the nearest military medical station.

THE EXHUMATION OF FALLEN SOLDIERS

The exhumation of soldiers killed in battle or those who have died in field sanitary institutions can be effected on the request of the nearest relatives to the ministry of home defense. The request must be supplemented by a document signed by the local magistrate (mayor, clergyman) proving that the party in question is actually a relative of the deceased. The place of burial must be sought by the party, and he has to supply a sketch illustrating the actual place of burial. The military authorities appoint a certain time, when exhumation can be made. This can be done, of course, only from single graves. Bodies of patients who died from typhus exanthematicus, smallpox, Asiatic cholera or plague are not permitted to be disinterred. In Hungary, the bodies of patients who died of scarlet fever and diphtheria can be disinterred only one year succeeding death. The exhumation is made in the presence of specially detailed military authorities. There must be present a relative of the deceased, who proves the identity of the latter. The exhumations are done by specially licensed undertakers. The bodies of dead soldiers are carried by the railway companies for a greatly reduced rate. The minister of home defense has lately issued a circular requesting the public to leave exhumations until the end of the war.

INFLUENCE OF MILITARY SERVICE ON TUBERCULOUS DISEASES

Despite the fact that most men inclined to be tuberculous, on entering military service and having the advantage of good hygiene through order, cleanliness, better nourishment, etc., enjoy a decided improvement in the first months, still after several months, sometimes even during the period of training, they have to go to the hospital. Tuberculous patients who are out in the field get worse; latent as well as inactive tuberculosis becomes manifest, and sometimes even florid. Therefore, in view of the probable increase in the number of tuberculous patients after the war, we should take care now that tuberculous patients are not sent to the front. At the outset it should be decided whether or not tuberculosis in a soldier is active, and those who fall ill during active service, and wounded tuberculous patients, should be placed in special hospitals and taught prophylaxis, as are patients in consumption sanatoriums. Dr. Scharl, director of the Budapest Consumption Sanatorium, believes that tuberculous patients who are dismissed from army service should be transferred to civilian hospitals and then kept in closed institutions for a long time. He believes that soldiers who are invalided through tuberculosis in war should be regarded as other invalids and that, by reason of the danger to others, the instruction of such people is of great importance.

UNIVERSITY EDUCATION OF INVALID OFFICERS

In the latest copy of the official gazette an order was addressed to the committees of the scientific and technical universities, and to the deans of all the higher law academies, veterinary schools, mining academies, agricultural high schools and foresting academies. The government has ordered that all those Hungarian officers, military officials and candidates in the army, navy or gendarmerie (up to the eighth class of salary, that is, the rank of a captain) invalided in the war shall be admitted as ordinary hearers (students) without admission examinations and without the necessary final examinations. Nominally most of the officers and officials are not required to pass final examinations because they have attended military intermediate schools, where their training is chiefly military, although the sciences are taught as well.

This exceptional advantage can be enjoyed only by those who can prove that they successfully attended, before the outbreak of the war, some military intermediate or high school, or the eighth class of some public gymnasium, and that they are unfit for further military service on account of invalidity arising from field service. These invalids enjoy gratuitous teaching in the universities by order of the minister of public instruction.

The Treatment of Typhoid with Intravenous Injection of Salt Solution

Dr. Mitlander has employed the intravenous injection of salt solution in more than 300 typhoid cases in Kagran and Baden in military hospitals. In light cases the patients have recovered without any special treatment. The disease lasted from 14 to 16 days. The temperature reached in some cases 40 C. (104 F.), and remissions of 3 degrees were not uncommon; clinically, however, these cases did not give the impression of being severe. In other light cases the fever has shown the regular curve upward and downward. In severe cases the curves have shown different pictures; the temperature rose to 40 C., and the remissions amounted to 3 degrees. In some cases there were great and small remissions observed with high temperature. The duration of fever lasted up to three weeks, and defervescence followed by lysis or crisis. In the severest cases, which included those of hemorrhagic diathesis, Dr. Mitlander tried to apply the intravenous infusion of from 300 to 450 c.c. of physiologic salt solution, which was preceded by the injection of 1 c.c. of 20 per cent. caffein and 10 per cent. camphor solution. A quarter of an hour afterward, chill and temperature elevation set in, and on the next day the temperature fell down critically to 36 C. (96.8 F.) but after two days rose again to 38 C. (100.4 F.) and after one week the fever generally subsided entirely. On the next day after the injection the patients feel better and give the impression of convalescence. In some cases the temperature fell by lysis, in others by crisis. The chill does not always occur after the injection. Dr. Mitlander is so well satisfied with the result, that he recommends this as a routine treatment for all military hospitals.

Marriages

ROBERT LIVINGSTON LOUGHRAN, M.D., New York City, to Miss Alethea Hagadorne Briggs of Kingston, N. Y., April 5.

LIEUT. WILLIAM D. PETIT, M. R. C., U. S. Army, Marfa, Tex., to Mrs. Inez Hysam Williams, at Marfa, March 13.

KARL ROLAND BAILEY, M.D., Jamaica Plain, Boston, to Miss Fannie J. Braune of Brookline, Mass., April 5.

VESSE REEVES HURST, M.D., to Miss Genevieve Yates, both of Longview, Tex., in New York City, February 10.

WILLIAM H. MOOK, M.D., to Mrs. Alice E. Walker, both of St. Louis, at Clayton, Mo., March 31.

LEWIS ALBERT SEXTON, M.D., Baltimore, to Miss Henrietta Stenz of New York City, April 19.

HUBERT VIVIAN GUILE, M.D., to Miss Gladys C. Arthur, both of New York City, April 6.

GEORGE A. HARRIS, M.D., Valley, Neb., to Miss Grace Coy of Waterloo, Neb., March 21.

GEORGE W. WEBSTER, M.D., to Miss Mabel Vibert MacNab, both of Chicago, April 15.

LOUIS RUBIN, M.D., to Miss Rose Kaber, both of Cleveland, March 29.

Deaths

Capt. Henry Levi Brown, M. C., U. S. Army, Detroit Medical College, 1894; aged 42; a Fellow of the American Medical Association; a graduate of the Army Medical School in 1905; who entered the army in 1898 as a contract surgeon and served with the Fourth Infantry in Cuba during the war with Spain; became a lieutenant and assistant surgeon in July, 1904, and received his promotion to captain in April, 1908; who was awarded in 1914, in competition with many American and European physicians, a $500 prize by the German government for a field surgical kit and whose latest service was with the expedition of General Pershing against Villa in Mexico; was taken ill with heart disease in Mexico, was brought back to the Military Hospital at Fort Bliss, Texas, and died there, April 15.

Nathan Oppenheim, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1891; aged 50; a Fellow of the American Medical Association and of the New York Academy of Medicine; a well known specialist on diseases of children; author of "The Development of the Child" which appeared in 1899; "The Medical Diseases of Childhood," which was published in 1900; "The Care of the Child in Health," which appeared in 1901, and the "Mental Growth and Control," in 1902; attending physician to Children's Department of the New York Red Cross Hospital, the New York City Children's Hospital and schools; and the children's department of the Sydenham Hospital; died in the Hotel Belmont, New York City, April 5.

Hobart Southworth Dye, M.D., Washington, D. C.; George Washington University, Washington, 1876; aged 68; a Fellow of the American Medical Association; and a member of the Washington Society of Ophthalmologists and Otologists; in 1891-2 president of the Chenango County, N. Y., Medical Society; a member of the consulting board of the Washington Asylum Hospital; associate at the Episcopal Eye, Ear, Nose and Throat Hospital and assistant in the eye and ear department of the Emergency Hospital, Washington; died at his home, April 5, from cerebral softening following a cerebral hemorrhage.

Charles F. Gilliam, M.D., Columbus, O.; Columbus, O., Medical College, 1878; aged 62; a Fellow of the American Medical Association and American Academy of Medicine, and a member of the American Medico-Psychological Association; superintendent of the Columbus State Hospital for the Insane; while driving in his automobile over a grade crossing of the Pennsylvania System at Columbus, April 11, was struck by a train and instantly killed.

Charles Henry Richardson, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1884; aged 54; a Fellow of the American Medical Association and a member of the House of Delegates in 1914; a fellow of the New York Academy of Medicine; consulting physician to the Ford Home for Incurables; treasurer of the Medical Society of the County of New York since 1904; died in Roosevelt Hospital, April 5, from heart disease.

Thomas M. Dunn, M.D., Free Union, Va.; Medical College of Virginia, Richmond, 1857; aged 79; a surgeon in the Confederate Service throughout the Civil War; for several terms a member of the House of Representatives of the Virginia General Assembly and for one term a senator; deputy collector of internal revenue during Cleveland's administration; a leader in the political life of Albemarle County; died at his home, April 4.

Albert Lewis Marden, M.D., Claremont, N. H.; Dartmouth Medical School, Hanover, N. H.; 1874; aged 66; for seventeen years a practitioner of Perkinsville, Vt.; a member of the school board; in 1888 and 1889 a member of the Vermont legislature and later a practitioner of Claremont, N. H.; secretary of the board of health and a member of the staff of the Claremont Cottage Hospital; died at his home, April 2.

George M. Peairs, M.D., Joliet, Ill.; Rush Medical College, 1891; aged 49; a Fellow of the American Medical Association; one of the most prominent surgeons of northern Illinois; surgeon to St. Joseph's and Silver Cross hospitals, Joliet; local surgeon of the Elgin, Joliet and Eastern and Chicago, Lake Shore and Eastern railways and Illinois Steel Company; died at his home in Joliet, April 13.

Duncan K. Black, M.D., Greenville, Mich.; Detroit College of Medicine and Surgery, 1886; aged 54; a Fellow of the American Medical Association; local surgeon at Greenville for the Grand Trunk System; vice president of the Com-

mercial State Bank, Greenville, and a member of the local school board; died at his home, April 2, from disease of the heart and kidneys.

Emma Katherine Ogden, M.D., Detroit, Minn.; Woman's Medical College of Pennsylvania, Philadelphia, 1875; aged 76; formerly a missionary of the American Board in Madura, India, but for thirty-five years a practitioner of Detroit, Minn.; vice president of the State Pharmaceutical Society; died at her home, April 5, from pneumonia.

Vincent R. Jackson, M.D., Milwaukee; College of Physicians and Surgeons, Chicago, 1890; aged 61; surgeon of Battery A, Illinois National Guard, Danville, during the Spanish-American War; for several years an inmate of the National Soldiers' Home, Milwaukee; died in that institution, February 14, from arteriosclerosis.

Edgar Moore Senseney, M.D., St. Louis; Washington University, St. Louis, 1887; aged 60; a member of the Missouri State Medical Association; lecturer on physiology in 1888, professor of therapeutics in 1890, and thereafter professor of diseases of the nose, throat and chest in his alma mater; died at his home, April 7.

George A. Strauss, M.D., Baltimore; College of Physicians and Surgeons, Baltimore, 1883; aged 58; for two years demonstrator of chemistry in his alma mater and the Maryland College of Pharmacy, and professor of chemistry in Baltimore University; died at his home in South Baltimore, April 5, from heart disease.

John J. Brinckerhoff, M.D., Minooka, Ill.; College of Physicians and Surgeons, Chicago, 1897; aged 46; for many years a practitioner and druggist of Minooka and secretary of the Desplaines Valley Poultry Association; died in the Silver Cross Hospital, Joliet, April 4, from embolism, a few hours after tonsillectomy.

Marion Bertha McDonald, M.D., Chicago; American College of Medicine and Surgery, 1903; aged 39; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; assistant in the Eye and Ear Department of her alma mater; died at her home, April 1, from carcinoma.

Joseph Henry McCann, M.D., Detroit; University of Michigan Homeopathic Medical College, Ann Arbor, 1910; aged 31; a Fellow of the American Medical Association; for four years health officer of the Spring Wells district of Detroit; died in Grace Hospital, Detroit, April 3, after an operation for appendicitis.

John Gordon Rennie, M.D., Petersburg, Va.; University College of Medicine, Richmond, Va., 1899; aged 41; a Fellow of the American Medical Association and a member of the visiting staff of the Petersburg Hospital; died in a hospital in New York City, March 30, from nervous breakdown.

Irving Stanley Balcom, M.D., New York City; New York University, New York City, 1887; aged 52; for more than twenty-seven years a practitioner of Fordham; a member of the visiting staff of Fordham and Bellevue hospitals; died at his home, March 29, from heart disease.

Hans James Grivelly, M.D., Hohenwald, Tenn.; State University of Iowa, Iowa City, 1887; aged 67; a Fellow of the American Medical Association and a member of the Minnesota State Medical Association; died at his home, March 27, from cerebral hemorrhage.

Charles A. Jessup, M.D., St. Louis; Missouri Medical College, St. Louis, 1877; aged 64; for many years superintendent of the St. Louis City Infirmary; died at his home March 29, as the result of injuries received when he was run down by an automobile in January, last.

Helen Bartlett O'Leary, M.D., Wollaston, Mass.; Pennsylvania Medical College, Philadelphia, 1861; aged 85; professor of anatomy in the Woman's College of Physicians and Surgeons of New York in 1865 and 1866; died at her home, March 4, from senile debility.

Louis Hatton, M.D., Camden, N. J.; Philadelphia University of Medicine and Surgery, 1864; aged 82; for many years a member of the Board of Education and the Excise Commission; died at the home of his daughter in Camden, March 27.

Frank G. High, M.D., Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1896; aged 46; for many years president, secretary, and treasurer of the Pittsburgh Field Club; died at his home, March 27, from valvular heart disease.

Alexander Irvin, M.D., Wallis, Tex.; University of Nashville, Tenn., 1861; aged 79; a member of the State Medical Association of Texas; surgeon in the Confederate Service during the Civil War; died at his home, March 24.

Marion Homer Duckwall, M.D., Moweaqua, Ill.; Illinois Medical College, Chicago, 1905; aged 38; a Fellow of the American Medical Association; died at St. Mary's Hospital, Decatur, Ill., March 25, from typhoid fever.

DeForest F. Baker, M.D., Cleveland, O.; Cleveland University of Medicine and Surgery, 1878; aged 64; died at the home of his daughter in Cleveland, March 28, from stricture of the transverse colon.

Charles Heinrich Marquardt, M.D., LaCrosse, Wis.; Jefferson Medical College, 1881; aged 61; also a graduate of the Philadelphia College of Pharmacy; died at his home, March 29, from pneumonia.

Franklin Delano Worcester, M.D., Keene, N. H.; Hahnemann Medical College, Chicago, 1887; aged 64; for ten years a member of the Keene Board of Health; died at his home, March 29, from paralysis.

John M. Grau, M.D., Jerry City, Ohio; Starling Medical College, Columbus, 1892; aged 51; was killed in the Lake Shore and Michigan Southern train wreck at Amherst, O., March 28.

Harry Brundage Casselberry, M.D., Hazleton, Pa.; Jefferson Medical College, 1886; aged 49; a specialist on diseases of the eye, ear, nose and throat; died in Philadelphia, March 29.

John B. Findley, Des Moines, Ia.; (license, years of practice, Iowa, 1886); aged 66; a practitioner of Iowa for more than forty years; died at his home, March 27, from heart disease.

Lydia Maria Holmes, Arlington, Mass.; (license, years of practice, Massachusetts, 1894); aged 88; a practitioner for forty-eight years; died at her home, from pneumonia, April 1.

James A. Mulnix, M.D., Dows, Ia.; College of Physicians and Surgeons, Keokuk, 1878; aged 63; also a druggist; died at the home of his daughter in Cedar Rapids, March 29.

Dexter H. Smith, M.D., Hurley, Wis.; Denver College of Medicine, 1895; aged 46; a veteran of the Spanish-American War; died at his home, March 18, from uremia.

Samuel D. Hazard, M.D., Jeffersonville, Ind.; University of Louisville, Ky., 1888; aged 52; died at the home of his sister in Jeffersonville, March 27, from nephritis.

Thomas J. Thurber, M.D., Rochester, N. Y.; New York Homeopathic Medical College, New York City, 1883; aged 71; died at his home, March 25, from pneumonia.

William H. Ware, Clarkshill, Ind.; (license Indiana, 1904); aged 68; for forty-seven years a practitioner of Indiana; died at his home, March 25, from pneumonia.

Frank Cordle, M.D., Lindale, Ga.; Atlanta, Ga., Medical College, 1884; aged 53; a member of the Medical Association of Georgia; died at his home March 21.

John L. Mavety, M.D., Ottawa, Ont.; McGill University, Montreal, 1911; aged 29; captain, R. A. M. C.; died in France, about Dec. 14, 1915, from acute poisoning.

Christian M. Hillebrand, M.D., Waubay, S. D.; University of Berlin, Germany, 1868; aged 74; died at his home, March 23, from cerebral hemorrhage.

Archer Irwin, M.D., Hilo, Hawaii; Dalhousie University, Halifax, N. S., 1892; aged 48; a member of the Medical Society of Hawaii; died February 22.

Samuel L. Tabb, Elizabethtown, Ky.; (license Kentucky, twenty-nine years' practice, 1893); aged 70; died at his home, March 22, from heart disease.

Walter Seltzer Capp, M.D., Lancaster, Pa.; University of Pennsylvania, Philadelphia, 1905; aged 34; died at his home, March 24, from tuberculosis.

Winfield Scott Morrison, M.D., St. Joseph, Mo.; Medical College of Ohio, 1880; aged 63; died at his home, March 25, from cerebral hemorrhage.

William P. McGovern, M.D., Cedarburg, Wis.; Rush Medical College, 1882; aged 57; died at his home, March 23, from heart disease.

William Ferguson Moffett, Chicago; an eclectic practitioner since 1857; aged 88; died at his home, March 14, from endocarditis.

Reuel Stewart, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1870; aged 86; died at his home, March 29.

Walter Clarence Hanscome, M.D., Minneapolis; Rush Medical College, 1884; aged 60; died at his home, March 23.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1261*)

April 10, 1916, Morning

Court met pursuant to adjournment. Dr. John Leeming resumed the stand.

FURTHER DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. T. J. Scofield:—If the Court please, there are one or two questions which I would like to ask.

THE COURT:—Very well.

Mr. T. J. Scofield: *Q.*—I wish to restate the hypothetical question which I asked last.

Doctor, I wish to ask you a hypothetical question in reference to a medicinal solution, Wine of Cardui. This solution is made from two herbs which are derived from the vegetable kingdom. One of these ingredients, cnicus benedictus, is made from a weed or thistle and when used in the form of an infusion, this substance has a bitter action upon the stomach. Assume also that it contains an amorphous bitter principle, which, in doses of eight grains is somewhat antiperiodic, that is, antimalarial in action and when an infusion of the whole herb is taken hot and in large quantities it is diuretic and diaphoretic in action, and also that it possesses some action as an hepatic stimulant.

Assume also, that when large doses of the bitter principle are taken internally, it produces nausea, vomiting and intestinal irritation.

Assume that this medicine is described in the National Standard Dispensatory, and assume that the description of it is correct as follows: "A simple bitter. It is also said to be an hepatic and urinary stimulant. It may be employed in a chronic dyspepsia, especially if hepatic torpor exists and like other bitters, it has been successful in the treatment of mild malarial infections. Overdose of its active principle sometimes produces nausea, vomiting, intestinal pain and diarrhea."

Assume that this drug is recommended in doses of from 20 to 60 grains and in the medicinal solution I am asking you about it is used in doses of approximately 30 grains.

The other drug I want you to consider in this hypothesis, is black haw or viburnum prunifolium, and, regardless of your own personal experience with this drug, I wish you to assume, for the purpose of this question, that when taken in the ordinary and usual medicinal dose of from 30 to 60 grains, it possesses a sedative action on the spinal nerve centers; that it lessens reflex excitability and irritability; that it acts as a sedative to the uterus and the pelvic organs; that it is an antispasmodic and that it possesses a bitter principle and is slightly tonic.

I wish you to assume further that, in the solution I am describing to you, that each dose of this medicine contains the extractives from three grains of this bark.

I wish you to assume further that the medicinal solution referred to contains 20 per cent. alcohol. Assume that the dose of this medicinal solution is one tablespoonful and that it is to be administered three or four times a day.

Have you an opinion, as to the physiological action that this medicinal solution would exert when taken by the mouth into the stomach? A.—Yes, I have an opinion.

Q.—What is that opinion? *A.*—My opinion is that the solution would exert the physiological action of cnicus benedictus in the ordinary dose of 30 grains. That, assuming the action of viburnum prunifolium to be as stated in the full dose, but that in this hypothetical solution it is administered in only three grain doses (which is one-tenth to one twentieth of the regular dose) that the properties or virtues attributed to viburnum prunifolium in this hypothetical mixture would be obtained in one tenth or one twentieth of the full amount of those properties. That the solution would also possess and produce all the physiological action of alcohol in the amount of 48 drops of pure alcohol, to each dose. This hypothetical solution would contain a combination of those physiological actions.

THE COURT: *Q.*—Is that 48 drops of pure alcohol.

Mr. T. J. Scofield:—Yes, sir.

Q.—Doctor, referring to these various hypothetical questions which I have asked you, and each of them, would your answers to any of the questions in reference to the hypothetical medicinal solution be changed in any way, if I should ask you to assume that the cnicus benedictus was used in doses of approximately 30 grains, and the viburnum prunifolium was used in doses of approximately three grains in the solution described? *A.*—My answers would only be changed in this respect; that, in the former hypothetical question, I was assuming the usual and ordinary dose of those two drugs. If you change it, as indicated in that question, to three grains of viburnum prunifolium (whereas I assumed in the former question the ordinary dose, which is from 30 to 60 grains) my answer would be modified just to that extent, that you are only getting one tenth or one twentieth of the full dose.

Q.—In all other respects, your answers would stand? A.—My answers would be the same.

Q.—To each of those questions? *A.*—Yes, sir.

EFFECTS OF USING HYPOTHETICAL MIXTURE

Q.—Now, Doctor, when you stated that the hypothetical medicine would not have any effect in any form of falling of the womb, whether it was anteflexion or retroflexion, or prolapse or whatever it might be, upon what do you base that opinion, and why do you say that? *A.*—Well, I base it upon these facts: there is nothing in the virtues of the two drugs, giving them credit for everything they were assumed to possess in that question, if they will do the very things that I am asked to assume they will do, they will not with all those properties draw this womb up. It won't act upon the body of the uterus, or the muscle of the uterus. They won't act upon the ligaments which contain some very small amount of muscular fiber. So that there is nothing in the virtues, even giving them credit that I am asked to give them, of the drugs in question which will do it. In the second place, there is nothing in this medicine that would restore the broken floor of the pelvis, which is necessary to keep the womb in place, in prolapse. There is nothing in the medicine that will correct the underlying causes that produce prolapse.

Q.—Would your answer be any different, if in addition to the hypothesis contained in the hypothetical question, I should include the element of the knee chest position? *A.*—If you should include that in addition to the medicine?

Q.—Yes? *A.*—No, it would make no difference, so far as the giving of the medicine is concerned. The knee chest position is a good form of position for the patient to assume occasionally, night and morning, to help try to replace the displaced womb, and get it up into position. Five minutes of the knee chest position, with proper breathing, will often help to draw the womb up into position, then, when they get up into their upright position, it goes back again. But, where you are using mechanical means to keep it in position, it is a good thing to use the knee chest position, and other forms of exercise to get it into position if possible, just as in the same way, it is a good thing to replace it by manipulation with the hands and then use some support. So that the knee chest position is valuable in that limited sense.

Q.—You said in answer to a question which was propounded to you last Friday, that this hypothetical medicine would not dissolve or remove adhesions, such as you described in connection with prolapsus of the womb, and other forms of falling of the womb. Why is that true? *A.*—Because the virtues attributed to those two remedies, and which I am asked to assume to be correct, will not cause the absorption of any adhesions. It requires medicines that are alterative in character, like iodin and things of that kind, that will absorb and dissolve down inflammatory exudate. There is nothing in those medicines that will have any action upon an exudate. This has been demonstrated by actual experiment not only on the lower animals, but upon the live human being, that it will not cause muscular contraction. It will not cause contraction of adhesions, and thereby aid in the absorption of adhesions.

Q.—Now, Doctor, when you stated that the medicine referred to in connection with the hypothetical questions which were propounded to you, and also in conjunction therewith, the use of the knee chest position, would not remove the cause of sterility, why is it true that it would not remove the cause of sterility in your opinion. *A.*—Why, it is for the same reasons I have indicated, in reference to prolapsus. There is nothing in the medicine that will undo the conditions upon which sterility depends. It is due to so many different causes, none of which can be undone or removed by the use of this sort of medicine even with all the properties that are attributed to it.

Q.—When you said, as you did last Friday, that the hypothetical medicine would not have any effect in removing the cause of inversion of the womb—Of what?

Q.—Inversion of the womb, or salpingitis, pyosalpingitis, ovarian abscess, menorrhagia, metrorrhagia and amenorrhea, why is it that you reach that conclusion, and why do you say that it will not produce any such effect? *A.*—For the same reason that I have just indicated in my last answer.

Q.—Now, Doctor, in case a woman has whites or leukorrhea, and at some time notices a slight tinge of blood in the discharge, what is the danger of the use of such a hypothetical medicine, if any, at that time? Would it or would it not be dangerous? *A.*—It might be dangerous for this reason: that the leukorrheal discharge, tinged with blood might be an evidence of some serious condition, and to use a palliative measure of any kind while an underlying, possibly serious condition is existing, and developing and growing worse, to disguise the outward sign of that inward condition by some soothing medicine, would be very dangerous and harmful.

It might be an evidence of a simple catarrh, and in such a case, it might not do much harm. But it might be evidence of a serious inflammation, and a progressive inflammation, it might be evidence of a uterine polypus. It might be evidence of cancer, where you get a discharge leukorrheal in character, occasionally tinged with blood. If that condition is disguised by the use of this medicine, or any sort of local applications in the way of washes, and the patient goes on with the idea that this is helping because it is disguised, the condition may go ahead and progress until it is beyond actual remedial treatment.

Mr. T. J. Scofield:—I think, if the Court please, that is all I care to inquire.

CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, when you were in active practice, were you more of a surgeon than a therapeutist, or more of a therapeutist than a surgeon? *A.*—The first half of my professional work was devoted to general practice. That means, both medicine and surgery, general work. The last half of my work during that period, was devoted more to surgery and particularly to surgery in the diseases peculiar to women.

Q.—For about how many years would you say? *A.*—For about 15 years.

Q.—For the past 15 years? *A.*—Up to the time that I was in active practice, which has been until about three or four years ago.

Q.—For the past three or four years, what has been your specialty? *A.*—I have had no specialty during that period, or at any other, except as I have indicated; but I have been doing more consulting work since 1912.

Q.—Are you in the employ of any corporation, for instance? *A.*—No, sir.

Q.—Do you prepare cases for the Traction Company, medical cases? *A.*—I am frequently consulted by them.

Q.—You mean, you are not on their pay roll? *A.*—No.

Q.—Are you regularly retained for that purpose? *A.*—No; frequently employed by them.

Q.—Each employment is a separate employment? *A.*—Yes.

Q.—How frequent has that been for the past three years? *A.*—Quite frequent.

Q.—How many times a year? *A.*—Well, I cannot give it in numbers, but I have been quite frequently consulted by them, different companies, both the steam railroad companies and the surface line companies, and other outside companies, frequently consulted by them.

Q.—Would you say in all their damage cases? *A.*—No.

Q.—In all their damage cases requiring a medical expert? *A.*—No.

Q.—In what proportion about? *A.*—By some of the companies one or two cases a year; by some of them quite frequently, often a number of times a month.

Q.—That class of work—

THE COURT: *Q.*—Are these cases generally men and women, or are you asked to testify in cases where the injuries are inflicted only on women? *A.*—I am frequently consulted by these various corporations referred to, regardless of whether the plaintiff is a man or woman, but I am very rarely asked to testify. That is, I have not testified for any of them for a long time, but I have been called in consultation by them regardless of whether it is a man or a woman.

Mr. Hough: *Q.*—Would you express that as working up the medical end of the case for them? *A.*—No, I would not express it that way.

Q.—Would it be that character of work? *A.*—I would express it by saying that the attorneys have consulted me with reference to the medical features involved in the case.

Q.—Then you would assemble the testimony, the medical testimony? *A.*—No, sir.

Q.—You would not have charge of it in that way? *A.*—Oh, no, not assembling it, but in a general consultation way.

Q.—Have you had charge of the medical testimony for the defendants in this case in that same way? *A.*—No, sir. Except in consultation, yes.

Q.—You have not had anything to do with going over the testimony with the different medical men? *A.*—Well, I have had consultations with a large number of medical men; yes, in that sense I have.

Q.—I mean, in reference to what they would testify to in this case? *A.*—Oh, no. Just with reference to the medical questions involved in the case.

Q.—For how long a period of time have you been at work on that? *A.*—Well, I have not been at work at it regularly, but I have had consultations from time to time during the past month with different doctors in the city and out of the city, in consulting with them about this case.

Q.—Have you had charge also of the out of town witnesses who have testified with reference to the use of Cardui as a beverage? *A.*—No, I have not had charge of them in any sense.

Q.—You mean you did not talk with them?

Mr. Loesch:—If the Court please, I object now. The witness has said that he did not have charge and still counsel says, "Have you had charge also?" I object to the word "also."

THE COURT:—I think everybody understands that.

Mr. Loesch:—Well, I—

Mr. Hough:—I meant in the same way.

THE COURT:—The witness has answered that he did not.

The Witness:—I did not quite catch the last.

Mr. Hough: *Q.*—Did you go over their testimony with them?

A.—No, I did not go over their testimony, but I was present on two occasions, I think, two or possibly three occasions when a certain number of witnesses from out of town related their experience to some of the doctors that were there, I mean aside from those who were visiting—and I listened to their story, and I asked them certain questions in reference to it. I would not say that I went over their testimony, but just learned—

Q.—You made no suggestions to them with reference to their testimony? *A.*—I would not say that I did not make suggestions. I asked them questions and some of the answers brought up matters for discussion.

Q.—When did you stop going on the stand in the Traction cases?

THE COURT: *Q.*—When is the last time you testified for them? *A.*—For the Traction Company?

THE COURT:—In a case in which the Traction Comany was interested?

Mr. Charles J. Scofield:—We wish to object to that as not being proper evidence, and I have an authority which I will present to the Court if you wish to see it. We simply make the objection.

THE COURT:—I do not think it is important, because it is simply a little atmosphere about the history of the witness and his general line of business. I do not think it is worth while reading any law on it.

To which ruling of the Court the defendants, etc., excepted.

Mr. Charles J. Scofield:—Very well.

The Witness: *A.*—Why, I think not for about two months, or two and a half months, the last time I think I testified for the Traction Company in any case that they were interested in was about that long ago, though I have testified since that time for others.

Mr. Hough: *Q.*—When did you first commence to testify for the Traction Company?

Mr. Charles J. Scofield:—I object to that as not proper cross-examination.

THE COURT:—I do not think we ought to go too far in this, Mr. Hough.

Mr. Hough:—Very well.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: *Q.*—Doctor, you have used the word "cure" in your testimony with reference to the hypothetical question and I now ask you whether you used that in the technical sense or in the ordinary everyday sense in which a layman would use that word? *A.*—I used it in the sense of meaning to remove the trouble, to cure the condition, literally cure the condition, in the technical sense.

Q.—Well, in the majority of cases, in that sense, there is no cure, is there? *A.*—I think in the majority of cases, there is a cure.

Q.—There is a cure? *A.*—Yes.

THE COURT:—Let me ask, does the word "cure" mean one thing to a doctor, and another thing to the patient?

Mr. Hough:—I understand that it does.

Q.—As an illustration, would you say that all displacements are pathological? *A.*—No.

DEFINITION AS TO WHAT IS PATHOLOGIC

Q.—Will you just tell the jury what you mean by "pathological." *A.*—By pathological I mean, with reference to displacements, that the displacement is beyond the normal range of movement, perhaps best illustrated by the forward and backward displacement. The uterus points forward towards the navel, but it is not held in a fixed position. It moves up and down.

Q.—I think you misunderstood the question. I asked you whether that was pathological or not? *A.*—I am going to explain, in an effort to answer your question, what I mean by pathological. Shall I continue that way?

Q.—Yes. *A.*—Any movement due to a fullness of the bladder, or emptiness of the rectum would be a normal movement, and not pathological. Any movement beyond the normal range, that requires an overstretching of the ligaments which hold it within its normal range; anything that pushes it beyond its normal natural position, would be pathological. Anything beyond what we call the normal range of movement, and that would produce symptoms of irritation or pressure, would be a pathological displacement.

Q.—Well, would you not say that pathological meant disease? *A.*—It usually is used synonymously with disease; not always, however, because certain displacements that go beyond the normal range, could not be literally termed "disease."

Q.—Now, would you say that a displacement which was accompanied by no pain, was pathological? *A.*—A displacement that is beyond the normal range of movement is anatomically speaking, a pathological displacement. Sometimes those pathological displacements produce symptoms and sometimes they do not, in their early stages, if they have developed gradually and slowly, because the parts become accustomed to the more marked or to a more enlarged range of movement than is normal. In time, as they progress a little more, the symptoms begin to appear. The slower they develop, the slower they are in producing symptoms, and sometimes the symptoms are obscure, symptoms that the patient may not notice; just the general symptom of pressure or backache and so on. But they will produce symptoms, though not so marked, on account of the slow and gradual development of these pathological displacements.

Q.—Suppose a woman should come to you, complaining of certain pains in her lower abdomen and pelvic cavity, and you would examine her and ascertain that there was some displacement, and prescribe a drug for her and as a result of taking the drug, the pain disappears and she comes to you and says that she is cured. You examine her and find that, though the pain may have disappeared, or the symptoms of inconvenience are no longer present, that the womb is in practically the same position as it was before. Would you say that she was not cured of the thing for which she came to you? *A.*—I would say that, in that case, she was not cured; that she had been temporarily relieved of the symptom of which she complained; that is, if she had a form of displacement that was pathological in the sense that I have described, that it was beyond the normal range of movement and had gradually developed so that it did not produce the marked symptoms. Something occurs in that woman's experience, possibly a little cold, a little congestion, a little too much movement, running a sewing machine or riding a bicycle, or riding horseback that, in that pathological condition adds to the congestion induced by this pathological state, though it had not been producing symptoms before.

Such a patient comes to me and complains of these pains. I make an examination and I find that pathological condition, and I give her the sort of medicine that we have been—that has been suggested to me, something that would relieve that pain; possibly a saline laxative, a dose of bromid, a dose of paregoric or something that would relieve the pain for the time being, and under the influence of that disguise, the patient gets rest and relief from the pain, and in a matter of three or four days, the effect of this cold has disappeared but she is in the same condition as she was before which had been just roused up, or had roused up the symptoms on account of her pathological condition. She goes along and she is not cured. She is just in the same condition as she was before. It has been temporarily disguised or relieved by some medicine or drug that has covered up the real condition. She is not in any sense cured.

Q.—Suppose the relief continues for 30 or 60 days. *A.*—It shows she has a chronic form of a pathological displacement that does not produce regular symptoms, but is still pathological just the same.

Q.—Would you not say that she had been cured of the condition for which she came to you for treatment? *A.*—She would be cured of the symptom, she is cured of the symptom, but not of the underlying condition.

Q.—You would insist that in that case there must be a surgical operation, notwithstanding that she is perfectly comfortable? *A.*—Not at all. No surgical operation would be considered in a slight displacement of that kind, that only produces occasional symptoms when she had perhaps overdone or something of that kind. That would just be a transient, temporary complaint of pain.

Q.—Would you say that there was anything more to be done for that woman than when that symptom has disappeared although the displacement you say continues, is there anything more you would insist upon doing for the woman? *A.*—There is.

Q.—What would you do? *A.*—I would advise this woman with one of these early displacements that had been the underlying cause of the symptom she complained of in coming to me, to avoid the causes that brought about that particular symptom. I would explain to her, her pathological displacement, and I would say to her, "It is not a serious matter, but if you will just be careful about this or that, or the cause that roused up that symptom temporarily, and for which I had to give you relief—be careful about that in the future," and in a way give her advice that would tend to prevent a recurrence of that symptom, which was due to her pathological condition.

Q.—And would you give her any medicine, or recommend any operation, in addition to simply telling her what she should do? *A.*—Since the symptom resulting from this condition was relieved by the medicine that I had already given, I would say she needed no medicine because the symptom had been removed; but I would advise her in reference to her conduct and habits, her bowel movements and diet, and to be careful not to rouse up again a symptom that was liable to occur on account of this condition. If it was more serious, and needed some mechanical support, some relief, even operative work, I would, of course, recommend it. But, in the simple case suggested to me, I take it that it does not need anything more than that form of advice.

Q.—But she would not be cured in the sense you used the term in answer to the hypothetical question? *A.*—Certainly not; she would not be cured.

Q.—But she did not have any more need of a doctor at that time? *A.*—She would not be cured any more than a person would be cured of the underlying condition that causes a headache, when the temporary headache that he had been given medicine to relieve, had passed off, although it might be due to some eye strain, or it might be due to some liver difficulty, or stomach difficulty which is still present. The symptom that had been produced by that underlying cause, is temporarily relieved but the same underlying cause may bring it on again.

Q.—You would say the same thing if the temporary relief you refer to should continue indefinitely, she still is not cured? *A.*—No, I would not say the same thing. I would say, if it continued indefinitely, and she only had a symptom of that kind once in a year, that the underlying cause was so slight that it was not at all marked, and that it hardly required any form of treatment. It would not be a pathological condition of sufficient significance to call for any form of treatment if it was a little symptom that was transient in character and only lasted for a day, because there the chances are that it would be some slight temporary difficulty.

Q.—Well, I say, the displacement, as you have used the word "cure," would not be cured. *A.*—It would not be changed at all.

Q.—You use the word "cure" in that sense? *A.*—Used it in the way of meaning an ending of the condition, upon which the symptom depended.

Q.—Doctor, do you know of the Liquor Sedans? *A.*—I do not know of its exact contents, but I know in a general way what it is.

Q.—You have used it in your practice, haven't you? *A.*—I think I have.

Q.—What is in it?

Mr. T. J. Scofield:—That is objected to as not cross-examination. I confined my examination to two medicines, or supposed medicines, so-called medicines.

Mr. Hough:—The application of it will be apparent later. I am entitled to ask this question.

THE COURT:—I will permit this question to be asked. I am not going to permit you to go all through the list and and cross-examine this doctor as to the contents of a thousand and one different drugs, just for the purpose of testing his knowledge. You say that you are going to connect this particular question later on?

Mr. Hough:—The authorities hold, Your Honor, that I can go very generally into these questions for the purpose of testing the witness' knowledge and familiarity as an expert, with the various drugs given for things concerning which he has testified.

THE COURT:—Yes, I realize that; but I do not want to open the door so wide that we are going to spend ten days on this witness by way of cross-examination.

Mr. Hough:—I think I will get through with this witness today if the witness won't deliver a lecture every time I ask a question. If he will just answer my question, without a lecture, we will get through today.

Mr. T. J. Scofield:—I think the witness ought to have an opportunity to explain.

THE COURT:—I do not think the witness has gone too far at the present time. You asked him a question that required a very comprehensive answer. He may answer this question.

To which ruling of the Court the defendants, etc., excepted.

(The pending question was then read).

A.—It contains bromides of potash and soda, I believe. It contains hyoscyamus and belladonna and viburnum prunifolium with some menstruum in the way of a pleasant syrup or elixir. I forget exactly what the menstruum is, and I do not think—I do not know the contents exactly, and do not think I have given them exactly correct, but it is a proprietary medicine, made in St. Louis, the contents being printed with the dose, on the label of the bottle.

Q.—How much alcohol is there in it? *A.*—I do not know the amount of alcohol there is in it.

Q.—Would you regard the alcohol that is in it as a negligible matter? *A.*—I do not know—I do not remember the amount of alcohol that is in it.

Q.—Disregarding the fact as to whether you remember or not, I ask you whether you would regard it as negligible? *A.*—I would not pass an opinion on it, until you tell me the amount there is in it. Then I would be able to give you an intelligent opinion.

Q.—Do you know how much alcohol was in it when you prescribed it? *A.*—I do not recall that I have prescribed it for a great many years, and I do not remember the amount of alcohol in it.

Q.—Assuming that it contains 30 per cent. alcohol, would you regard that amount as negligible? *A.*—In what dose?

Q.—In whatever dose you gave it? *A.*—In doses of two teaspoonsful (that is my recollection of the dose prescribed, as I prescribed it) the amount of alcohol would be negligible.

SYNERGY

Q.—Now, doctor, what is meant by the expression, "synergistic action of a drug?" *A.*—I do not recall that word as you pronounce it. Do you mean the synergistic action? (Witness pronounces the "y" short.)

Q.—Yes, I pronounced it so as to indicate the "y". Synergistic if you prefer that pronunciation. *A.*—I do not know the literal meaning of it.

Q.—Well, what is the meaning of the term? *A.*—It means the action of a drug upon the living tissues, according to the physiological effect.

Q.—You are sure that that is the meaning of it? *A.*—That is my understanding of it, yes.

Q.—Does it not mean the effect of a combination of two drugs as distinct from the action of the two drugs separately? *A.*—No, I do not think that is the full meaning of it. It means the action of the drug or drugs upon the human tissues. Now, whether it is in combination of two or three drugs—

Q.—Don't it have relation exclusively to the combination? *A.*—I do not know that. I do not know that to be a fact.

Q.—Do you know it to be a fact that two drugs combined will have a more pronounced effect, than the two drugs separately, when they are of the same character? *A.*—Regardless of the dose?

Q.—Even if smaller dose is used, that it will be more pronounced? *A.*—That is two drugs like two different forms of bromids, given in five grains each, instead of ten grains of the one, that the combination of the two would have a better action, than the full sized dose of one? There are cases I think where that is true.

UTERINE TONICS

Q.—And where two uterine tonics are used, the combination of the two has a more pronounced action, than either one used separately? *A.*—I think the same principle would apply on the assumption that there is such a thing as a uterine tonic.

Q.—Is there such a thing as a uterine tonic? *A.*—I do not know of anything that is a real uterine tonic.

Q.—Have you ever heard the term or seen it in medical literature? *A.*—Yes.

Q.—Frequently? *A.*—I have heard it more frequently in the last month or two than ever before.

Q.—You are familiar with the literature on the subject of gynecology, are you not? *A.*—Yes.

Q.—Do you mean to say that it don't appear frequently in that literature? *A.*—Not very frequently.

Q.—Well, as you have seen the term in medical literature, what does it mean? Just tell the jury— *A.*—As I understand it—

Q.—What a uterine tonic is. *A.*—A uterine tonic means a remedy that will tone up, add tone to the muscles that we term the uterus. It is simply a muscle. There are some medicines that will cause a contraction of these muscles, like ergot and pituitrin, medicines of that kind. Those medicines could be called, and I think properly called, uterine tonics in the sense that they cause more tone, more firmness in the contraction of the muscle of the uterus.

Q.—Do you make a distinction between a medicinal tonic and a uterine tonic? *A.*—Well, a uterine tonic may be a medicinal tonic; it may be also a general tonic. I make a distinction between a tonic that acts on the stomach for instance, and a tonic such as I have indicated, that acts upon the uterus.

Q.—What would you say then is a medicinal tonic? *A.*—Well, a medicinal tonic is a remedy that tones up generally, anything that will improve the nutrition or tone of the body generally could properly be called a tonic, a general tonic in contradistinction to a local tonic, which acts on the stomach, for instance. A tonic that acts as a general tonic to the stomach, we call that a stomach tonic, and a—such as a bitter tonic. We call that a stomach tonic, and a tonic that acts on the heart like digitalis, we call that a heart tonic and a tonic like a mineral acid that acts on the liver, we call that a liver tonic, and a tonic like ergot that is supposed to act on account of contracting the unstriped muscular fibers all over the body, and on account of

the fact that the uterus is a large body of unstriped muscular fiber, it may show its effect more in the uterus—we call that, for that reason, a uterine tonic.

Q.—Tonics act in two ways in building up the system, do they not, directly and indirectly? *A.*—Two ways? Well, I would not describe it as acting in two ways.

Q.—The action on the stomach and intestines, and the digestion, is the indirect action of the tonic, is it not? *A.*—Yes, sir.

Q.—And the action on the blood would be the direct action? *A.*—No, that would be indirect action, too, I should think.

Q.—Isn't that usually classed as direct action? *A.*—It depends on the point of view you are considering it from. You could call the action on the stomach a direct action, in the same sense, that being an action upon the nutrition, enriching the pabulin of the blood, that would be direct, a direct tonic, anything that will do that.

Q.—How does a medicinal tonic, which acts on the blood, help the system? *A.*—Well, a tonic which acts on the blood enables the blood to do two or three different things, which makes it more tonic. For instance, the blood carries the oxygen from the air to the tissues for the purpose of oxidization. It carries in it a certain substance technically known as hemoglobin, the coloring matter of the blood. It carries the oxygen in this hemoglobin, a sort of iron. If this hemoglobin is insufficient in amount, it carries less oxygen. If the red corpuscles in which the hemoglobin is situated, are smaller in number than they should be, its carrying power is lessened. If we add to the blood something that increases this hemoglobin, that adds to its number of red corpuscles, we are increasing its carrying power of oxygen, and we are adding in that way to the nutrition of the tissues by enabling the blood to do better work. That is one way in which a blood tonic acts. It acts on the whole system.

Another way, in which a tonic acts, is by taking medicine into the stomach, or by injecting it under the skin, such, for instance, as strychnia which, when carried into the blood, is conveyed to the nerve centers; the nerve centers in the brain, and in the spinal cord. The action of the strychnia in the blood even in minute quantities, stimulates these nerve centers to great excitability, more marked action, so that you get better muscular tone as a result of the effect of the strychnia upon the nerve centers.

You get medicines that act as a tonic in a variety of different ways, of which those two ways are illustrative.

Q.—Then whether they act directly or indirectly, the effect is to enable the organs of the body to perform their respective functions better? *A.*—Yes.

Q.—A prolapse is any downward deviation, is it not? *A.*—Beyond the normal range

Q.—If it is a fraction of an inch, it is a prolapse? *A.*—Well, of course any fraction of an inch is a prolapse in the literal meaning of the word, but pathological prolapse, which I presume you mean, is beyond the normal range.

Q.—Figure D would be what you call procidentia? *A.*—Not complete procidentia, partial. Complete procidentia means where the whole uterus is outside of the cavity, including the fundus. The fundus is the top of the womb. The fundus in figure D is not outside.

Q.—How many degrees of prolapsus are there, as the matter is usually referred to? *A.*—How many in Chart D?

Q.—No, in medical literature, do they not classify prolapsus into three degrees? *A.*—Oh, yes. There are different degrees of prolapsus, first, second and third degree.

Q.—What is the first? *A.*—Beg pardon?

Q.—What is the first? *A.*—The first is where the uterus has passed down beyond its normal range of motion, and is possibly an inch lower than its natural position. The second degree is from that down, so that the neck comes to the outside, just to the outside. There is no well marked line of demarcation between the full extent of the first degree, and the beginning of the second. There is no marked line, but where the uterus is down, so that the uterus is within a couple of inches of the outside, we call it, a "first degree prolapse." Where it is further down, so that the cervix is right pressing on the perineum and near the outside, we call that "second degree prolapse."

Q.—Doctor, are there any such things as medical authorities? *A.*—No, I don't think so.

MEDICAL TEXT BOOKS

Q.—Are there any such things as standard medical text books?

Mr. T. J. Scofield:—That is objected to, if the Court please.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—There are such things as standard text books in the sense that different colleges recommend certain text books.

Mr. Hough: *Q.*—Is there then a difference of opinion among the medical profession as to the truthfulness and reliability of these different text books taught in the different colleges? *A.*—Why, the opinion that is held, I think, generally, is that each writer gives his own particular views on the subject that he writes about. It is authority, so far as he is concerned. It is his opinion, and opinions do differ among doctors.

Q.—Are they views which a beginner should expect to follow or not? *A.*—I think they are often a very good guide until the beginner has advanced far enough to test out the views that this particular writer has recommended in his own experience and practice.

Q.—Then he may differ with the views which he learned at school, as he engages in the practice, may he not? *A.*—If his experience leads him to contrary views, I should think he would naturally differ.

Q.—So would you say that there are as many different views on medical questions, as there are practitioners or doctors? *A.*—Not quite that many.

Q.—Not quite? *A.*—No, I think doctors sometimes agree, and there are certain questions involved in medicine, upon which practically all doctors agree.

TREATMENT OF PROLAPSE OF UTERUS

Q.—Now, doctor, when a patient comes to you, complaining of pains, and you diagnose the case as one of prolapsus in the first degree, what treatment would you subject the patient to? *A.*—That would depend entirely upon what the underlying condition, as revealed by examination, was which I found to be the cause at that first degree prolapsus, and the treatment would depend upon that finding. If it was due to subinvolution of the womb, a womb that is too large as the result of getting up following childbirth before the womb had gone down to its natural size, and owing to its increased weight for three or four months perhaps, with some rather unusual hard work of lifting or something of that kind, the womb had gradually slid down and there was no other cause for it, that I could discover by my examination, I would advise this woman to rest, not be on her feet so much, not do quite so much heavy lifting and work, and I would give her, as I have indicated, drugs and medicines by the mouth containing small doses of a bitter tonic like quinin and one grain of the extract of the active principle of ergot, ergotin and little doses of strychnin as a general tonic, with the idea of stimulating a contraction of that uterine muscle, making it press down and get smaller and smaller and smaller, until it got to its natural size.

If the result of this pressure, this partial prolapse was producing symptoms of backache, with bearing down pains especially marked at the menstrual period, I would probably use a tampon of lamb's wool; I would recommend this woman at night to use the knee chest position to relieve the passive congestion that a prolapse always brings so that the womb would be well up at night when she was lying down to go to sleep, and there would be less of that passive congestion.

Then I would put in this tampon to keep it up, so that when she stood on her feet, it would not sag down so much. That kind of combination of treatment I would recommend in the hope of gradually relieving the condition or preventing its getting any worse.

I would tell her to avoid the use—to avoid the doing of anything in the way of hard lifting or hard work. I would tell her also to avoid the use of anything stimulating in the way of eating or drinking and to keep her bowels free by a laxative medicine so that she would not have the pelvic congestion. That would be my general line of treatment for a case of that sort.

Q.—Would you give or recommend any local wash? *A.*—It would depend entirely on whether she was suffering from a leukorrheal discharge or any other form of irritation about the vagina. If she had such, I would recommend her to take some simple antiseptic wash, or if not, I would tell her to use the ordinary douches that all ladies should use being more a matter of general sanitary cleanliness and care with married women.

Q.—Now, if the prolapse was in the second stage, what would be your treatment? *A.*—Well, it would be the same line of treatment, but paying more attention to the mechanical support in the second stage, where the uterus comes right down to the floor of the pelvis because there is always something more than the subinvolution or enlarged condition of the womb.

You probably find in such a case that the uterus was enlarged either from subinvolution or some growth in it or same inflammatory condition that had thickened and enlarged its walls, but that in addition to that, that the perineum had been torn back and that the posterior part of the vagina was wide open and the bowel was beginning to come down. I would use the forms of treatment that I have already outlined, all of them, and I would recommend this patient as soon as I had got the womb up in place, and kept it up in place for a matter of weeks or a month or two, that she was to avoid with care the things that tended to bring it down. If I was seeking to make a permanent cure, I would recommend her to have the edges of the tear freshened and the floor of the pelvis restored so that it would hold the womb up in position, being one of the causes that had permitted it to come down.

If the enlargement was due to an old chronic inflammatory condition I would recommend her to have, at the same time, the inside of the womb curetted and scraped away, so that the mucous surface which was producing that abnormal secretion, would be restored and to so restore any other underlying condition (many of which there are) that would cause this second degree prolapsus. I would tell her to have those things cured.

Q.—Now, in how many cases where you simply restore the womb by tampons, or pessary, in position and recommend the raising of the hips at night, or the knee chest position and exercise and some general or uterine tonic—in how many cases does the woman get so she can dispense with the pessary and tampons? *A.*—I do not think she ever gets so, if she has second degree prolapsus, so that she can dispense with either the pessary or tampon, or something else that will take the place of the pessary or tampon.

Q.—In a first degree prolapse, does it ever occur? *A.*—In a first degree prolapse, it depends upon whether the symptoms have been sufficiently marked. Sometimes a person may have a prolapse that is down to what would be a part of a first degree prolapse without producing very marked symptoms. I have seen cases of that kind that, after some corrective treatment, such as I have outlined, and care as to their conduct and habits, and condition of bowels and so on, that they would not complain much. The condition is there just the same, and liable to be roused up by any indiscretion, but in that sense they are relieved from their symptoms for the time being, but in no sense cured of the proiapsus, which means that the ligaments which have been that much overstretched, have to be shortened and that cannot occur of course from any of these forms of treatment.

Q.—But the doctor discharges them and then they can go about their business, and they don't come back? *A.*—They don't come back again, because they don't have symptoms that are marked enough to call for medical treatment. The doctor does not discharge them necessarily.

Q.—The second or third degree, however, would require as an alternative an operation, you say? *A.*—Well, that would depend upon

whether you were using palliative treatment or curative treatment. The third degree prolapse calls for some replacement. It calls for putting the rupture back in place, and it calls for something to keep it back in place, or it calls for a more radical treatment, in the way of an operation that will permanently remove the causes which have permitted the third degree of prolapse to come down.

Q.—Now, in the operation which you have referred to in second degree prolapse, is that what you would call fixation? *A.*—No.

Q.—What would you call it? *A.*—I would call it a perineorrhaphy.

Q.—Well, what do you mean by that? Explain it so the jury will understand. What do you do? *A.*—I would freshen the edges of the torn perineum, and would put in stitches and bring these parts together and form a new perineal body, that after the womb had been lifted up this perineal body would fit in like a wedge so as to hold it up in position. That is what I mean by restoring the perineal body.

Q.—Which of the operations would you call fixation? *A.*—Fixation is an abdominal operation where you open through the abdomen, which you very rarely do for a second degree prolapse, unless it is complicated by a lot of other things, and by pulling the womb up into position and attaching the peritoneum which covers the womb to the peritoneum which lines the abdominal wall, and stitching it together, a fixation, putting it up together and sewing it literally to the abdominal wall, we call that an anterior fixation operation.

Q.—What do you call an operation which either folds over a part of the round ligament and shortens them, or taking out a section shortens them, in order to hold the womb in position? *A.*—Well, there are a number of operations that are done. The one that is best known is called the Alexander operation. These two round ligaments that go down into the groin, into the inguinal canal, the round ligaments can be reached by making a cut right in the fold of the groin, and where the uterus is bent back or turned back on itself, and these round ligaments are overstretched, from three inches long to five or six inches long, assuming that they are equally stretched, if it is nothing but a straight back prolapse. Then by cutting into the groin in these places, without opening the abdomen at all, an assistant will put his fingers under the uterus and raise the uterus up and hold it in that position while the attending surgeon draws this round ligament in the groin which he has isolated and pulls it through on the two sides. If one requires more pulling than the other, on account of the uterus being tipped over to one side, he will draw that up so much tighter, and he will just shorten up those round ligaments so that it will hold the womb that was formerly back in that position (illustrating), up in that position, making these two round ligaments from the internal ring on the inside to the upper corner of the uterus, two and a half inches long. Then he will do one of a number of things with the part of the ligament that is drawn out. It looks like a cord that is drawn out through a hole. Sometimes it is simply folded on itself. The method is to just fold it in that shape (indicating) and stitch it in that shape, and then burrow it right into the tissues as you stitch up the opening. Some others bring it up through one of the large muscles; make an opening in this rectus muscle that goes up in the abdomen, and instead of having that much space (indicating), bend it up in that form, and it grows in that position, takes hold there. Some of them cut it off and stitch it down to the canal. There are various ways of disposing of this prolongation of the outer end of the round ligament, but the principle is the same in every one. It simply draws from the inside until the uterus is drawn up into position and held in position.

Q.—Now, isn't it the trend of medical thought today that all those operations are unsatisfactory? *A.*—No, I don't think so.

Q.—Including fixations and suspensions? *A.*—Fixation is not done nearly so much as it formerly was, and is practically never done during the childbearing period of a woman's life, because of the apparent danger of the womb becoming impregnated with the front of it stitched to the abdominal wall, which would interfere with the enlargement of the womb during pregnancy. For that reason that operation has been quite largely abandoned, and also for the additional reason that these other measures that I have partly referred to have proven to be more satisfactory and more effectual than the anterior fixation operation.

Q.—Well, isn't the trend of medical thought more along the lines now of replacements and therapeutic action coupled with exercises, than operations? *A.*—There is no tendency in the trend of medical thought that I am familiar with in the direction of therapeutic action for displacement. There has never been any trend or any tendency along that line that I know of.

Q.—You mean you have never read of the discussions in the medical journals or attended medical conventions where those questions were discussed? *A.*—Not where the question of curing uterine displacement by therapeutic measures have been discussed.

Q.—I am talking about not merely that, but the treatment of female troubles by medicine instead of by surgery? *A.*—The treatment of female troubles by medicine, so far as disturbances of functioning are concerned, is always a matter of discussion among medical men, but the cure of mechanical and structural changes in these parts by medicine has never been discussed, to my knowledge.

Q.—Well, don't you know the Alexander operation is being abandoned? *A.*—Well, just exactly as Dr. Alexander performed it, because some of our modern gynecologists have suggested methods of disposing of this outer end in a way that they seem to think, and other doctors seem to think, is more satisfactory. So that the Webster operation now is used more than the Alexander operation, and the Dudley operation is supposed to be an improvement on it. It is the same principle, but a different method of technic, according to later surgeons and gynecologists, with this same kind of operation.

Q.—What is the Gilliam-Crossen operation? *A.*—Do you mean for this same purpose?

Q.—For any of these troubles? *A.*—Well, I don't know just what his technic is.

Q.—What is the Tod Gilliam operation? *A.*—I don't know.

Q.—Do you know what the plain Gilliam operation is? *A.*—Do you mean the disposal of the round ligament?

Q.—I want to know if you know what the plain Gilliam operation is? *A.*—I don't know what his technic is in this particular operation. He did a lot of operating.

Q.—Do you know what the Gilliam-Ferguson operation is? *A.*—Well, I have seen him do it a great many times, and I know what his operation is, but how Gilliam modified it I don't know.

Q.—Isn't it coming to be generally recognized in the profession now, that where the operation cures or seems to cure one pathological condition it creates six or ten new pathological conditions to confound the woman in after years? *A.*—Not by the surgeons and gynecologists that I have been acquainted with.

Q.—Well, what is the view of the therapeutists on that subject? *A.*—I have never heard, excepting from you, any view in that direction at all.

Q.—Never have heard anything? *A.*—I have never heard of modern surgical procedure creating five or six other conditions that are worse than the original condition, in favor of using some form of therapeutic measure of curing those things. I have never heard of such a thing as that.

Q.—You have never heard or seen the statement that all operations for displacements are still sub judice? *A.*—No, I have never heard of that.

Q.—Would you say that they are not? *A.*—Well, I don't know. I would only say it in the sense that they were sub judice with this modification, or with this idea, that there is always room for improvement. They are under question because we may improve in the methods, and that is what gives these various modifications to the well recognized forms of operation. The operation for appendicitis is still sub judice because we are improving in it. We never ought to bury the stump now. We never ought to do a lot of other things that they used to do, that we didn't know about at first. Now in that sense all these modern operations are still under discussion for the purpose of improving our methods.

Q.—And they operate less for appendicitis now than they did a few years ago? *A.*—No, I don't think so. I think that they operate very much more frequently now than some years ago, because that operation is simply a modern operation, comparatively modern. Many persons were dying because they were trying to take medicines to cure a condition which there was an underlying cause for that could not be cured except by operation.

WITNESS' USE OF DRUGS

Q.—Now, have you ever used medicine given by the mouth for any case of sterility? *A.*—Yes.

Q.—Did it do any good? *A.*—Yes, I know one case that I had in my experience where I think medicine did some good.

Q.—Did you ever use medicine given by the mouth for any cases of dysmenorrhea? *A.*—Yes.

Q.—Did it do any good? *A.*—Yes.

Q.—Did you ever use medicine given by the mouth for amenorrhea at puberty? *A.*—Yes.

Q.—Did it do any good? *A.*—Yes.

Q.—Have you ever given any medicine, or did you ever give any medicine by the mouth during pregnancy? *A.*—For what? For the pregnancy?

Q.—For any condition incident to the pregnancy? *A.*—Yes.

Q.—Did it do any good? *A.*—Yes.

Q.—Did you ever give any medicine to a woman during the menopause? *A.*—Yes.

Q.—For symptoms which were distressing or painful? *A.*—Yes.

Q.—Did it ever do any good? *A.*—Yes.

Q.—You prescribed, as I understand, viburnum prunifolium during a period of about ten years? *A.*—Yes.

Q.—Did you know when you were prescribing it how much alcohol there was in it? *A.*—It did not always contain alcohol when I prescribed it.

Q.—Didn't it? *A.*—No.

Q.—Mostly did, didn't it? *A.*—Yes, until I got trying it without the alcohol to see if I could get any difference in its effect.

Q.—But that is just recently, isn't it? *A.*—No.

Q.—Not recently? *A.*—That is the reason I gave it up a number of years ago.

Q.—Did you ever give any woman the alcohol habit from giving her the viburnum with alcohol in it? *A.*—I think not. I have never given it over a long enough period of time, and I never let them know what they were taking, or that they were taking an alcoholic preparation, but have prescribed it for special things for a period of a week, during a painful menstruation, for instance, and at the next painful menstruation have given them an entirely different preparation, for the very reason of keeping them from getting into the habit of taking a drug that was alcoholic and that might insidiously develop that tendency, of which there is a very great danger.

Q.—Well, anybody can go into the drug store and buy fluid extract of viburnum prunifolium, can't they? *A.*—No, I think not.

Q.—Don't you think anybody can do it? *A.*—Not by the pint.

Q.—By the bottle, as it comes? *A.*—I think they might get an ounce or so, because I don't think it comes under the Food and Drug Law that prevents the sale of—I am not quite sure about that. It may be. I never heard of anybody buying it excepting on a physician's prescription.

Q.—And they can get Liquor Sedans, or any of those things that contain alcohol, that comes in prepared bottles containing as much as a pint, can't they? *A.*—I don't think so. They ought not be able to do so. I don't know just what the law is on that subject. Of course there are many preparations that contain alcohol that can be bought, I presume. We are hoping the time will come when they won't be

able to do it, but at present I think some of it can be bought, like tincture of orange.

Q.—You hope the time is coming when they cannot use anything except on a doctor's prescription? *A.*—No, I don't mean it in that sense, but there are some official preparations that contain a large amount of alcohol, and they do not contain very many potent qualities which can be bought, like many "patent medicines," and like tincture of orange, which contains 90 per cent. alcohol. If that were used in large quantities and bought by the dozen bottles I would be just as strongly against it as any other alcoholic nostrum, although it is an official preparation.

THE COURT:—I will excuse the jury for a few minutes.

(Whereupon a recess of fifteen minutes was taken.)

A "VILLAINOUS ACT"

Mr. Hough: *Q.*—Doctor, would you say that a physician who recommended or prescribed fluidextract of viburnum prunifolium to a young girl at puberty, for amenorrhea or pains incident to that condition, was guilty of a villainous suggestion, or was guilty of a villainous act? *A.*—If he prescribed it in the form of the extract, without any alcohol in it—

Q.—I say the fluidextract? *A.*—Oh, did you say the fluidextract—I beg your pardon. No, I wouldn't say that as you said it, unless it was given over a long period of time and for continuous use without any exact knowledge of the underlying condition that existed.

THE COURT:—Well, let me ask, Mr. Hough, are you asking about a normal case?

Mr. Hough:—A normal case, yes.

THE COURT:—That is any young girl, a normal case of any young girl reaching the age of puberty.

The Witness:—Oh, I didn't so understand it. I thought you meant for some condition that called for medication. In a normal case I would certainly say it was a villainous suggestion to give any alcoholic preparation over an unlimited period of time to a young girl in her period of development, if she was normal.

Mr. Hough: *Q.*—Would it be villainous if her menstruation was coming on slowly, or not coming on, to prescribe it until it did come? *A.*—Well, assuming a normal girl?

Q.—Well, a girl that is suffering, would you call that normal? *A.*—No, I should say, with that added statement to your question, I would say that she was not perfectly normal, and that there are some underlying causes for the condition, that would require investigation.

Q.—Then you would say that a physician who prescribed fluidextract of viburnum prunifolium for that condition would be doing a proper thing? *A.*—I wouldn't know from the way you said it whether the viburnum prunifolium—even assuming that it had the virtues that I have been asked about, and claimed for it—whether it would be indicated in that case, without knowing why her menstruation was scanty or slow in developing.

Q.—Well, viburnum prunifolium contains 55 per cent. of alcohol, doesn't it? *A.*—Yes.

Q.—Now, I say, would a physician who prescribes it for any irregularity at that period, be charged with committing a villainous act? *A.*—If he prescribed it at that period for a girl who has scanty menstruation as the result of an anemia that was due to one of a dozen different things, I should say that it would be a most improper form of treatment, it would be a very harmful form of treatment, and could not have any effect in relieving the trouble because it could not get at or remove the cause that was producing the scanty menstruation.

Mr. Hough:—I ask that that answer be stricken out as not responsive.

THE COURT:—It may be stricken out. You might tell the witness what you mean by a villainous act.

Mr. Hough:—Well, he may know the meaning of the word.

Q.—I asked you whether that would be a villainous act on the part of that physician? *A.*—Well, what do you mean by a villainous act?

THE COURT:—As you understand it?

Mr. Hough: *Q.*—As you understand it? *A.*—I think under those circumstances, if I understand your question, it would be a villainous act.

Q.—Well, how do I know whether you understand my question or not? *A.*—Well, I say: As I understand it.

Q.—Well, how do you understand it? *A.*—Just the way I stated it a moment ago. If it was prescribed without a knowledge of the actual, underlying cause that produced that scanty menstruation, and where that cause might be one of a dozen constitutional conditions that would produce an anemia, which would result in scanty menstruation, to prescribe a medicine containing 55 per cent. of alcohol, and she would take that medicine, regardless of what is causing it, and use it right along, I would say that that would be most villainous and pernicious, as much so as anything I can think of.

Q.—Well, if the doctor thought it was indicated for that condition, would it still be villainous? *A.*—If he thought it was?

Q.—Yes? *A.*—I wouldn't care what the doctor thought. I am assuming the fact that if those conditions existed it would be villainous.

Q.—But I say, if the doctor thought it was indicated, would it still be villainous? *A.*—I still say I would not care what the doctor thought. If those were the facts you might get some doctor to think that it was indicated. I am satisfied that it would not be indicated under the circumstances that I am explaining.

Q.—Now, would you say that doctors who prescribe viburnum prunifolium for menstrual irregularities were practicing frauds on their patients? *A.*—Why, I prescribed it. I don't think I was practicing fraud. I prescribed it when I thought it had some effect. But on certain kinds of cases, such as I have just described I don't think it would have any effect.

Q.—And you don't think you were guilty of a villainous suggestion if you gave it, either? *A.*—No, because I didn't give it to young girls that were suffering from anemia, young girls that were suffering from hookworm or tuberculosis, or anything of that kind.

Q.—Did you give it to young girls? *A.*—I gave it to girls that were having difficult, painful menstruation.

Q.—Well, you gave it to young girls? *A.*—Not very young, no. I possibly have prescribed it for girls of fifteen or so, but usually for girls of twenty, in that neighborhood.

Q.—You spoke of viburnum prunifolium without the alcohol; that is not official, is it, in the pharmacopeia? *A.*—No.

Q.—In speaking of an official preparation, it has to have the 55 per cent. alcohol, doesn't it? *A.*—No.

Q.—Doesn't it— *A.*—It does not have to have the 55 per cent. to be official.

Q.—To be official? *A.*—No. Lots of tinctures are official that don't have 55 per cent. alcohol.

Q.—I am talking about viburnum prunifolium fluidextract. *A.*—I did not understand you to say so. I thought you said anything to be official.

Q.—No, no. I said fluidextract of viburnum prunifolium has to have 55 per cent. alcohol? *A.*—Yes, to be official, according to the British pharmacopeia.

Q.—Did I understand you to say that Wine of Cardui would be dangerous during pregnancy, because of the alcohol that is in it? *A.*—Yes; that is what I said.

Q.—Don't you know that German women drink beer all during pregnancy? *A.*—Yes.

Q.—That has more alcohol, doesn't it? *A.*—Some of the German beers probably have, yes.

Q.—Isn't it a fact that alcohol, as low as 20 per cent. is freely oxidized in the stomach? *A.*—No.

Q.—In the system? *A.*—I do not think it is oxidized in the stomach at all.

Q.—In the system? *A.*—Yes; if it is taken in small quantities.

Q.—Up to 20 per cent? *A.*—20 per cent? How much of the 20 per cent. solution do you mean? It is the quantity of alcohol I am referring to. If you take a small dose of a 20 per cent. solution it may be easily absorbed and oxidized in the tissues.

Q.—And when it is absorbed and oxidized in the tissues in that way, it has no therapeutic action, such as alcohol when used as a beverage, does it? *A.*—It has a therapeutic action.

Q.—I say such as alcohol when used as a beverage; it does not have the same physiological effect? *A.*—It does not have exactly the same in small doses, as it does in large.

Q.—Do you know how the cnicin came to be discovered in carduus benedictus? *A.*—By chemical analysis of the carduus benedictus.

Q.—No—I mean, weren't they hunting for a substitute for quinin? *A.*—I don't know about that.

Q.—And wasn't it determined by those experiments that cnicin possessed the qualities of quinin, except in a lesser degree? *A.*—I don't think that it was discovered that it contained the qualities of quinin but in a lesser degree, excepting in one slight particular that it was somewhat antiperiodic in action if used in large quantities.

Q.—Do you know of any other experiments except Nativelle's? *A.*—I don't know of the experiments of that person.

Q.—Do you know of any experiments, then? *A.*—I only know in a general way, without any particular experimenter, that cnicin, amorphous bitter principle has been discovered, but by whom or how or when, I don't know.

Q.—And that it had the characteristics of quinin? *A.*—No; except in that one particular, that it is said to be antiperiodic in its action.

EFFECTS OF VIBURNUM

Q.—I believe you have stated that during the ten years that you used viburnum prunifolium, you have prescribed it for all the irregularities of female menstruation, haven't you? *A.*—No.

Q.—Did you never prescribe it for amenorrhea? *A.*—No. I have never prescribed it only for dysmenorrhea and menorrhagia.

Q.—Did you ever use it as a tonic, after you had replaced the womb, in cases of displacements? *A.*—I have never recognized it as having any tonic effect on the uterus, and therefore have not used it for that purpose, and do not, while I was using it.

Q.—What effect did you think it was having when you did use it? *A.*—I thought it possessed a sort of soothing, sedative, antispasmodic action upon the uterus, as it was reputed to by the man who first brought it into notice; that it had the soothing, quieting effect, and in certain forms of dysmenorrhea, difficult menstruation, where I could find no underlying cause that satisfactorily explained the trouble, and where I was relying upon some medicine that would have a soothing effect, I used the fluid extract of viburnum, to see if it would exert its soothing effect; and in the form of fluid extract it contained 55 per cent. alcohol, and used in doses of from one to two teaspoonfuls, at the time, I thought I got some benefit from the use of it; and I continued to use it with that idea, until I tried it in the solid extract form—although it is unofficial—thinking that the alcohol might be causing the effect, just the same as the corresponding amount of gin in hot lemonade has had a similar effect—and I tried the viburnum in equal quantities, corresponding to the dose that I had given in the fluidextract, and in larger quantities, and I found it had absolutely no effect. And I was led to the conclusion that it was the alcohol—55 per cent. alcohol, that was producing the soothing, narcotic, quieting effect. And I experimented along that line with it until I established, in my own opinion, in my own mind, to my own satisfaction, that viburnum prunifolium had no soothing, quieting effect on the uterus; and for that reason I abandoned its use.

Q.—It is still being taught in medical schools to the new doctors, though, as a useful preparation for all those conditions, is it not? *A.*—I think it is being taught in this way: That it has been reputed to have antiperiodic, antispasmodic, uterine sedative action. It is quoted and requoted for the last fifty years, until fifteen years ago, when it

dropped out; and occasionally now is used. Doctors referred to as having been quoted by Ferres, and it is quoted by this man and that man as having a certain effect, that a great many of them make this kind of a statement—"But, as far as I am able to learn, these effects have never been satisfactorily demonstrated; its use is more feeble than was supposed; its uses have been recommended for this and that, but I have never found it to be valuable." And occasionally a man would write, "Yes, I think it has been useful in curing or preventing abortion; that it has relieved dysmenorrhea." Each man writes his own views, and the literature is more or less full of such, with references to this preparation and others.

Q.—The same is true of carduus benedictus, is it not? *A.*—Well, yes, only with considerable difference that carduus benedictus dates away back, 200 or 300 years.

Q.—You mean it is an older preparation than the viburnum prunifolium? *A.*—Well, I would not say it was older, but was written about and perhaps used farther back than viburnum prunifolium.

Q.—Well, both of them are written about even today, aren't they? *A.*—Yes.

Q.—For these things? *A.*—Both for and against these things. I have not heard anything about carduus benedictus being written about recently for these things—if by "these things" you mean as a sedative to the uterus.

Q.—Female troubles, yes, and as a uterine tonic? *A.*—No. I do not think that carduus benedictus has been written about recently; at least not to my knowledge; it may have been written about.

Q.—You never yourself used carduus benedictus, did you? *A.*—No.

Q.—You never experimented with it? *A.*—No.

Q.—Then, how could you say in answer to that hypothetical question that carduus benedictus could not have any effect in any of these conditions? *A.*—Because I have a general knowledge of the physiological action of drugs, and the question propounded to me asked me to assume that this carduus benedictus was a bitter; that it had some tonic action on the stomach; that taken in hot effusion it caused an increase of sweating, an increased flow of urine; and that it also had some effect as a stimulant to the liver, acting as a sort of liver stimulant; and that it had been used with some success, in hot effusion, in suppression of menstruation from cold.

And, having all that in mind, I was asked if I had an opinion as to what its physiological action would be, and I said yes, based upon that idea, assuming that it has these properties, I have an opinion as to whether it will cure a retroflexion of the womb, or gonorrhea, or uterine prolapse; even giving it the credit for everything you have attributed to it. That is the reason I answered in that way.

Q.—Suppose you had been asked, assuming it was a uterine tonic, would your answer have been the same? *A.*—It would have been just the same.

Q.—Would your answer have been the same, because you used the word "cure" rather than "relieve"? *A.*—No.

Q.—You have said—you would have said that it would not relieve the symptoms in any of these cases? *A.*—I would not have said that.

Q.—You would not have said that? *A.*—I would not have said that. If it is a uterine tonic, or uterine sedative, there may be some outward signs or symptoms of these underlying conditions, which in a medicine that is a uterine sedative or uterine tonic, or contains alcohol, might temporarily relieve those conditions; but would not cure the underlying conditions.

Q.—You mean, would not cure the displacement? *A.*—Would not cure the displacement, and it would not cure the amenorrhea in a woman, and it would not cure the undeveloped ovary, and it would not cure a large number of things I was asked about.

Q.—But if it relieved the woman of the pain which she suffered in connection with the displacement, according to your diagnosis, why should the woman care anything about whether the womb is displaced or not, if she suffers no more?

Mr. T. J. Scofield:—I object to that, if the Court please.

The Witness:—For the reason—

THE COURT:—Objection sustained

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough:—Is it necessary to cure a displacement which has no symptoms, such as pain or inconvenience to the woman?

Mr. T. J. Scofield:—I object to that question.

THE COURT:—He may answer that.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—Well, if it is discovered, although it gives no symptom, it might be wise to correct it, for fear of its later developing some symptom. Many conditions that are found accidentally on examination which the patient did not know about should be removed. Of course, we don't recommend the use of medicine or medication or manipulation, or anything for people who don't complain of anything. That is, doctors do not.

THE COURT:—That is to say, the patient may be anatomically defective and physically perfect?

The Witness:—Yes; not know of the defect; or he also may have certain conditions, in opening the abdomen, which you would discover. I used the illustration before, but perhaps it is as good as any. I frequently, in operating on the tubes, for instance, have discovered an elongated and inflamed appendix, that evidently had been inflamed before, and I have removed it, although it was not giving rise to any symptom, but because I thought possibly on some provocation it might, and while I had the abdomen open for something else, I removed the appendix at that time. I would do that at the time, although it was not producing any symptoms.

Mr. Hough: *Q.*—Have you ever furnished a few uteri to a friend who wanted to experiment, when you had the stomach open for something else—or the pelvic cavity open for something else? *A.*—No; I have never furnished any uteri for that purpose.

Q.—Never have? *A.*—But I know they have been experimented upon.

Q.—Now, is it not a fact that curettage has been found to be unsatisfactory? *A.*—I think in over 99 per cent. of cases it is very highly satisfactory. There are just a few occasional cases where damage has been done, the uterus has been perforated in curettage, and other damage has been done by going too deeply into parts; but in practically all the cases where curetting is done, it is a very satisfactory and very effective method of curing a chronic form of inflammation and uterine polypi, and various diseased conditions of the lining membrane of the womb.

Q.—Now, coming back to symptoms: When a patient is complaining and comes to the doctor, they come primarily for the symptoms; they want to be relieved of the symptoms, don't they? *A.*—Yes, that is usually what the patient wants.

Q.—And when the doctor gives the medicine, and the symptoms disappear, the patients go away as cured, don't they? *A.*—Well, that is not my way of it. That is, if they came with an itch on the skin, where the barber has infected them, and you give them something that relieves that sensation, they are not cured of the condition. If they have got a ringworm and you give them something so they will not feel the pain, they are not cured. If they have any number of other conditions of that kind, which give outward signs, and you use soothing medicine, some narcotic, some stimulant that disguises the condition—they are not cured, although they are temporarily relieved. They say "I feel better, and I guess that is all I want." It will come right back again, if there is any real condition, any underlying cause that produces that symptom, as soon as the temporary effect of the medicine has passed off.

Q.—Take the case of headache: they come to you with a headache, and you give them some medicine and the headache disappears? *A.*—Yes.

Q.—They feel they are cured, and, as a matter of fact, the thing that caused the headache might still exist, might it not? *A.*—They feel they are cured, as long as they are under the influence of the disguising medicine; like a strain in a defective vision, for instance. It may produce a headache, on account of its not being properly corrected with glasses. An antypyretic or anodyne, or some such medicine, will relieve that headache for the time being, and the patient will go away and say, as they frequently do, "Just as soon as I took a dose of the medicine I felt better; that is a fine medicine." But as soon as the effect of that medicine passes off, the condition that produced that headache is still there, and it is not cured.

Q.—If the next day they have not then a headache, would you say they are cured? *A.*—No. I would say they are temporarily relieved, and they would have a headache the next day if the underlying cause which produces the headache is still active. Of course, if they are lying in bed and still, it might not return.

Q.—Suppose for a week they did not have a headache, would you say that medicine you gave them cured them? *A.*—No. I would say it did not correct their eyestrain—

Q.—I was not talking about eyestrain; I was taking about the medicine you gave them for the headache. *A.*—Yes, but what for? I could not say what for, from your question. I would have to have some general idea of what the medicine was used for.

DIAGNOSIS

Q.—Of course, you ask them what their symptoms are, so as to enable you to guess at what causes their headache? *A.*—Guess? Guess, yes, that is the correct word. I do sometimes guess, if I only get one symptom as to what causes the headache; but, as a rule, I try to exclude the various things that would produce that symptom, or set of symptoms, and learn what the underlying condition is, to enable me to intelligently prescribe.

Q.—Isn't diagnosing largely guessing? *A.*—No.

Q.—Simply excluding as many symptoms or causes as you can, but still it is a guess, is it not? *A.*—No, I don't think it is largely guessing. I think now, in the advanced stage of medical science, that it has got largely beyond guesswork. It formerly was guesswork, at the time—

Q.—Would you say all doctors are equally good diagnosticians? *A.*—No, not at all.

Q.—Is there a difference in them? *A.*—Why, I think so; yes.

Q.—That is one would diagnose correctly and the other diagnose incorrectly? *A.*—I think all doctors, no matter how far advanced they are in their work, are liable, possibly, to make some mistake in cases where medicine is not an exact science; but in the great majority of instances, now, it has become practically exact, where you can prove by the microscope and by chemical analysis and by physical examination, and actually demonstrate to a certainty the condition; and not have to guess, like we used to, fifty years ago, when syphilis and gonorrhea were confused and thought to be the same thing, and fevers were all confused, and typhoid and typhus were the same thing. It was guesswork then, but we have advanced in this work and are enabled now to positively diagnose.

Q.—I am not talking about blood diseases now, but things like headaches and cold. *A.*—Headache is not a disease.

Q.—What? *A.*—Headache is not a disease.

Q.—It is a symptom of a—. *A.*—It is a symptom of some other disease.

Q.—A symptom of some other disease? *A.*—Yes, yes, sir, the same as dysmenorrhea.

Q.—It is a mistake, therefore, to refer to curing the disease, when they should refer to curing the symptoms, or relieving the patient of the symptoms? *A.*—No; just the reverse of that is what I believe in, that you should cure the disease, not try to disguise the symptoms.

Q.—Not even to relieve the symptoms? *A.*—Sometimes, if the symptom is so distressing, where the neuralgic pain is so unbearable, or the

pain of pleurisy is so bad it cannot be borne, some palliative treatment is admissible, while you are investigating and trying to get at and remove the underlying cause which produces it.

Q.—Therefore, if a person has a cold, then it is dangerous for a doctor to give any medicine for it, without going through an elaborate investigation to determine the cause of the cold? *A.*—It is not always—it is not always so.

Q.—But as to headache, it is? *A.*—Sometimes it is very dangerous, and the delay that has been induced by that form of haphazard treatment of symptoms has caused many a patient to get beyond the reach of proper treatment.

SELF MEDICATION

Q.—And if a patient thinks they have a cold, it is very dangerous for them to go and take some aspirin, without going to a doctor and having the whole thing thoroughly diagnosed, to find out about it—is it not? *A.*—In a simple thing like a cold, no; in the majority of cases it would not be dangerous. But, supposing a person had a tubercular taint, whose father or mother, or somebody in the family had died of consumption, and he had a cold and was treated in the way that disguised it by some medicine, that would stop the cough and relieve the soreness and drive it in and down. The very commencement of a tubercular bronchitis might be established if that were the method of treatment—but not so in the majority of cases, of cold cases, where Nature's recuperative power will throw off a cold; but in the exceptional cases it is a very dangerous procedure.

Q.—Well, self-medication, from the doctor's standpoint, is exceedingly dangerous, is it not? *A.*—Not at all. I have always tried to advise my patients to—or how to treat themselves for simple ailments, and when there are any dangerous signs to come up then to consult me.

Q.—If a person has a cough, it is dangerous to get any cough medicine, without having a diagnosis. *A.*—Not at all, if he understands his case and is familiar with it, and in consultation with his doctor he has been generally advised. I have known in my own case, where I have used a thing in a dozen different families, in a hundred different families for years, I would say, "If you have a little bit of a cold, don't send for me; take a little bit of loosening medicine that will help Nature to throw it off.

Q.—Now, coming back to the use of the word "cure"; and, relating to the, or having the relation to the—what you call the cause of the symptom, would your answer have been any different to the hypothetical question, if you had been asked whether or not that medicine would relieve the symptoms caused by the disease?

Mr. T. J. Scofield:—If the Court please, I object to the question. My question went to the cure—

THE COURT:—Physiological effect, I think, was the question.

Mr. T. J. Scofield:—Yes.

THE COURT:—Have you an opinion as to what physiological action this medicinal solution would exert when taken by the mouth into the stomach?

Mr. Hough:—The witness also testified that this medicine would not cure displacement. Now, I want to know whether, if he had been asked, since we have discovered the dysmenorrhea or amenorrhea—

THE COURT:—You may ask him his opinion as to this hypothetical medicine, whether it would relieve any of the symptoms of dysmenorrhea or what.

Mr. Hough:—What I want to ask him is whether if that question had been modified, so as to have been put in this other form, his answer would have been the same. I think I am entitled to ask him that question.

Mr. T. J. Scofield:—That is not cross-examination.

Mr. Hough:—It certainly is.

Mr. Scofield:—No, that is not.

THE COURT:—Read the question, Mr. Reporter.

(Question read.)

THE COURT:—I am somewhat of the same opinion, that his answer to the hypothetical question has nothing to do with that proposition, because the hypothetical question was directed to the physiological effect of certain things. Now, how could that answer have been changed, whether he was talked to about cures or relieving symptoms?

Mr. Hough:—Well, it seems to me that it is pertinent. He has also stated that his answer would have been different if the hypothetical question had assumed that carduus benedictus was a uterine tonic. I was entitled to ask that question.

THE COURT:—Yes, and did.

Mr. Hough:—And did. And I am entitled, with regard to the form of the hypothetical question, either to add to the assumptions or to take from the assumptions.

THE COURT:—It is the form of your question, Mr. Hough, that I think is objectionable. You may ask him whether this hypothetical preparation will relieve symptoms of these various things.

Mr. Hough:—Well, I will ask him—

THE COURT:—I think the situation is complicated by bringing in the word "cure" there. I think we all understand what it means now.

Mr. Hough:—What I wanted to find out was whether there was any thing tricky in his answer, based solely on the use of the word "cure," that is his understanding of the term, which is different from the common understanding of the term.

THE COURT:—The word "cure" was not used either in the hypothetical question or the answer.

Mr. Hough:—It is my understanding that the word "cure" was used exclusively. He said "will it cure these displacements?" He said, "It will not cure." He did not ask the question at the same time he put the hypothetical case—

THE COURT:—Oh, I recall it. Then you asked the question whether it would not relieve the symptom. That is what we want to learn.

Mr. Hough:—Well, would it?

Mr. T. J. Scofield:—Just a minute, if the Court please. The first hypothetical question referred to the physiological action; and in every instance where I asked a subsequent question in regard to curing, I quoted in the question the language of "Home Treatment for Women"—absolutely.

THE COURT:—Well, that might be.

Mr. T. J. Scofield:—Yes.

THE COURT:—But I think this is proper cross-examination, just the same.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—Will it? *A.*—Well, I have got just a little mixed up on the question.

THE COURT:—Put a specific case, Mr. Hough.

Mr. Hough: Q.—Assuming that Wine of Cardui is a uterine tonic, and that carduus benedictus—I mean, that, assuming that carduus benedictus is a uterine tonic, and that viburnum prunifolium is a uterine tonic, would those amounts in Wine of Cardui relieve the symptoms such as amenorrhea, dysmenorrhea, metrorrhagia, or menorrhagia?

Mr. T. J. Scofield:—That question is objected to, unless he tells the doctor how many—

Mr. Hough:—I am basing it on the hypothetical question.

THE COURT:—He is basing it on the hypothetical question.

Mr. T. J. Scofield:—All right.

Mr. Hough: Q.—Would they?

A.—I think there are some cases that might get temporary relief from it.

THE COURT:—We will stop now until 2 o'clock.

An adjournment was taken until 2 o'clock p. m. of the same date.

April 10, 1916, Afternoon

TESTIMONY OF DR. LEEMING (*Cont.*)

Court met pursuant to adjournment. Dr. John Leeming resumed the stand for further cross-examination by Mr. Hough.

FURTHER CROSS-EXAMINATION BY MR. HOUGH (*Cont.*)

Q.—Doctor, will you tell the jury what an emmenagogue is? *A.*—An emmenagogue is a remedy that stimulates the menstrual flow.

Q.—Has it a secondary meaning in that it means making menstrual flow normal? *A.*—No, I think not. Not that it makes it normal, but that it either brings it on when it is absent, or stimulates an increase in the flow when it is present.

Q.—Would you call it a regulator? *A.*—No.

Q.—You stated that the only relief for gonorrhea was a germicide. Can you safely use a germicide in the uterus or the vagina? *A.*—Yes, with proper care and restrictions you can.

Q.—Wouldn't an antiseptic be better? *A.*—An antiseptic is also a germicide.

Q.—Well, it is not as strong, is it? *A.*—Some of them are a great deal stronger. Carbolic acid is an antiseptic and also a germicide, and is much stronger than some of the simple germicides.

TREATMENT OF GONORRHEA

Q.—Would you say that that is the best treatment for gonorrhea? *A.*—Which do you mean, the use of a germicide?

Q.—Or an antiseptic, yes. *A.*—It depends considerably upon the location of the inflammation produced by the gonorrhea. If it is a place where it can be reached so that the application of a germicide can be applied directly to the specific inflammation, it is the best treatment for curative treatment. But where it has passed up inside of the uterus, and passed up into the fallopian tubes, then, of course, it is dangerous treatment.

Q.—Would you say the most approved or best treatment is just to keep the parts clean? *A.*—Just what?

Q.—Just to keep the parts clean? *A.*—The best treatment? No, I wouldn't say that that was effectual treatment at all for gonorrhea.

Q.—Where the person was run down would you say a tonic was contraindicated? *A.*—Contraindicated, no, I would not. If he or she was run down a tonic is indicated, is called for.

Q.—You spoke of cancer being cured by surgical operation. Isn't the latest thought on that subject among medical men that cancer is a blood disease? *A.*—There is a theory to that effect that it is a blood disease with a local manifestation.

Q.—And any medicine which would tend to increase the white corpuscles in the blood and fight those other germs, would be of benefit, wouldn't it? *A.*—No.

Q.—It would not? *A.*—Not in cancer. It has been positively demonstrated that no medicine can increase the leukocytes (or white blood

corpuscles) to such an extent as to prevent the localization of cancer, or to correct it or cure it after it has once become localized.

Q.—Is the operation the only treatment? *A.*—No.

Q.—With the operation don't they give a tonic for the blood? *A.*—They give a tonic for the blood with the operation if a tonic is indicated. If it is called for. Just as they do for any other condition. If a tonic is called for, if the blood is poor, they don't refrain from giving a tonic to build up the blood because a person has cancer or a club foot or a crooked leg or anything else. If they need a tonic we give a tonic. But we do not give a tonic to cure the deformity or to cure the cancer or to cure the specific condition.

Q.—Did you say that cancer was very frequent at change of life? *A.*—Yes.

Q.—More frequent than at any other time of a woman's life? *A.*—Yes, I think more so than at any other period. That is, cancer of the cervix or cancer of the reproductive tract is more frequent then than at any other period.

Q.—Will you explain to the jury what is the plastic operation. *A.*—For what?

Q.—For any diseased condition of any part of the uterus? *A.*—Well, the plastic operation means the repairing of the soft tissues. We call a plastic operation the operation for restoring a torn perineum, for restoring a torn cervix or neck of the womb by freshening the edges, bringing raw surfaces together and suturing them or stitching them together. All operations of that class on the uterus are termed "plastic operations."

Q.—That is the class of operation that you referred to in cases of prolapse, wasn't it? *A.*—That is one of the classes of operations that I described where the prolapse is due to a destroyed or torn perineum, torn to such an extent as to remove the support from below. A plastic operation of restoring the perineum would overcome that cause.

Q.—When is that operation considered a success? *A.*—Do you mean with reference to the result or the time it is performed?

Q.—With reference to the result. *A.*—The operation is considered a success when it restores the perineal body to its proper form and brings about the natural support which the original perineum furnished in the way of the floor of the pelvis supporting the structures above it.

Q.—That operation is considered a success even though the woman has more trouble after than before, isn't it, if the tissues have joined? *A.*—I don't know of any such result as that. In the experience I have had with it they have less trouble, and great relief from the trouble after it, if it has been a success, than they have before.

Q.—Do you know of anything in the literature on the subject which says that the troubles are greater afterward than before? *A.*—I don't know anything about literature saying anything about that subject. I am simply giving you my opinion based upon my own experience and my own work in that line.

Q.—Did you ever prescribe Aletris Cordial, Doctor? *A.*—Yes, I think I did.

Q.—For how many years? *A.*—Well, a very few years.

Q.—Did you know how much alcohol was in it when you prescribed it? *A.*—No.

Q.—Do you know how much alcohol is in it now? *A.*—No.

Q.—Do you regard the amount of alcohol in it as negligible? *A.*—In the manner and form and doses and frequency of dose that I prescribed it I did.

Q.—That was for female troubles, was it? *A.*—It was for dysmenorrhea.

Q.—For nothing else? *A.*—I do not recall ever prescribing it for anything other than dysmenorrhea as a pure symptom.

Q.—Is it a frequent occurrence or not that one doctor will get good results from a medicine and another doctor will not get good results from the same medicine? *A.*—No.

Q.—That is not frequent? *A.*—I think that is not frequent. There may be a difference in the reports of different medical men, depending upon the closeness of observation or the control that is exercised on the patient, and the condition underlying the treatment, and so on, but I think that medicines will act the same in similar conditions in different patients and in the hands of different doctors. And there may be differences in their reports, just the same as there may be differences in patients saying what results they get. They may be very often mistaken in that.

Q.—You mean mistaken as to the results? *A.*—They are mistaken as to the medicine producing the result.

Q.—Well, that is something that a doctor never does know actually, does he? *A.*—No, that is not true. There are many cases where it is capable of exact and positive demonstration.

Q.—In the majority of cases they never know whether the results are due to the medicine? *A.*—Oh, I think in the majority of cases they do know.

Q.—You think they do? *A.*—I think they do, yes, that is what I stated.

A CURE

Q.—How can they tell that the result was due to the medicine? *A.*—Where you give a form of medicine, for instance for a condition of anemia: Prior to the administration of that medicine you can make an exact determination of the constituents of the blood. You use a medicine containing iron and arsenic in certain forms for a matter of a month or six weeks, or two months. You have another blood analysis made and you see a positive change in the number of red blood corpuscles, a positive change, in the form of an improvement, in the amount of hemoglobin in the blood, showing that the blood has been enriched by the form of tonic that has been used, and the symptoms that were dependent upon that weak blood, poor quality of blood, are reported to be greatly improved. That, to my mind, is a positive demonstration of the action of medicine.

Q.—Suppose we eliminate cases of blood tests. In other classes of cases, where you do not make tests of that character, can a doctor ever tell that it was his medicine that cured? *A.*—Yes.

Q.—How would they tell in such cases? *A.*—In a case of certain forms of so-called female trouble, perhaps as good an illustration as I can think of at this moment, is a case of subinvolution. Subinvolution means, as I stated before, that the uterus is too large, and boggy; hasn't got down to its usual size after confinement, or after pregnancy has been ended, either by normal delivery or by miscarriage. The uterus gradually comes down and gets back toward its normal size. Sometimes it remains too large. We call that condition subinvolution. That means that the uterus is too heavy, too big; it has too large a bleeding surface on the inside. I have had cases of that kind repeatedly where I have used medicine internally in the form of small doses of ergot, or its active principle, ergotin in combination with some form of tonic, if the particular case called for a general tonic, and I have observed under the influence of that treatment, the uterus gets smaller and smaller, contracting down, demonstrating positively what we know to be the physiological action of ergot in toning up and contracting the uterus, so that after a month's treatment of that kind the uterus, instead of measuring four inches long on the inside, will measure three inches, two and three-quarters, and get down to two and a half inches. The symptoms of excessive flowing, the symptoms of pain in the back, the various other symptoms that are complained of with the enlarged, heavy uterus, gradually getting better and better, as the uterus, under the influence of that kind of treatment, gets smaller and smaller; entire and positive demonstration of the action of the medicine in curing this condition.

Q.—With reference to that hypothetical question, doctor, of course you were familiar with it before you went on the stand, I take it? *A.*—Yes.

Q.—May I assume that you helped prepare it? *A.*—If you wish, yes. I consulted with the attorneys, and that may be considered help.

Q.—Can you say that all the statements in the hypothetical question, which were assumed to have been in the books referred to in the hypothetical question, were complete and correct statements?

Mr. C. J. Scofield:—We object to that, if the Court please, as not a proper question.

THE COURT:—The objection is sustained.

Mr. Hough:—It seems to me I am entitled to ask him if he knows certain things.

THE COURT:—You have asked him whether there was anything else outside of the hypothetical question that he might have assumed. That is the substance of your question.

Mr. Walker:—No.

Mr. Hough:—I didn't mean it that way. I say: Does he know whether the extracts from the medical works referred to in the hypothetical question are complete and correct extracts from those medical works?

THE COURT:—Well, what difference does it make on a hypothetical question whether he knows it or not? He gives his answer on the basis that they are true. Whether they are true or not is immaterial so far as this cross-examination is concerned. He is not given any information as to the truth or falsity of that assumption.

Mr. Hough:—That is what I am asking him, whether he knows that any of those things are true, just as I am permitted to ask him whether he knows what is in certain textbooks on certain subjects. It tests his general knowledge on the subject. I think that is a competent question.

THE COURT:—If he knows he may answer. Do you want to read the question over to him so that he gets everything in mind?

The Witness:—I would like to have it.

Mr. Hough:—He knows it.

The Witness:—Oh, you mean the original question—I have that in mind. But your question now, I don't quite remember it.

Mr. Hough: *Q.*—Doctor, do you know whether the extracts from the medical books which were referred to in the hypothetical question were correct quotations and were complete? *A.*—Yes, I know.

Mr. C. J. Scofield:—If the Court please, we wish to preserve our objection.

THE COURT:—You mean correct quotations from the book?

Mr. Hough:—Yes.

THE COURT:—Not whether it is a correct statement of fact or not, but a correct quotation?

Mr. Hough:—Yes.

THE COURT:—He may answer, if he knows, of course.

Mr. Hough:—He says he does know.

Mr. Walker:—He said they were.

The Witness:—I said I know.

Mr. Hough: *Q.*—Well, are they? *A.*—They are correct in substance.

Q.—In substance? *A.*—Yes. Some things perhaps have not been put in, and possibly some things left out, but in substance they are quotations from certain books.

Q.—And would you say that they are in substance complete? *A.*—Well, I wouldn't say they were complete in the sense that they convey everything that has been said in these various books, because there

have been so many things said, but the essence of the quotations, or of the extracts of the books are pretty well covered, I think, in the hypothetical question.

The witness was then asked a long hypothetical question in which he was requested to assume that carduus benedictus, in addition to being referred to in the medical works, referred to in the previous hypothetical question, is officially in a series of pharmacopeias dating from 1627 to 1911, including those from various countries and sects in medicine. He was asked to assume that numerous quotations concerning carduus benedictus and carduus marianus are found in various books, pharmacopeias, dispensatories, dictionaries, etc., and with each quotation was given the names of the authors and compilers, together with their degrees and official positions. He was also asked in the same way to assume with reference to the drug viburnum prunifolium that various statements are made by numerous authors concerning it. And finally:

"Now, Doctor, would you say that the medicine referred to in the hypothetical question put to you by Mr. Scofield, described in the medical works referred to in his question and in the medical works which I have just read to you as therein described—would you say that that medicine would furnish no relief in any menstrual disturbance?"

(The question occupied some twenty-nine typewritten pages of the court reporter's transcript.) Mr. T. J. Scofield objected to the question. The Court excused the jury during the argument on the objection.

In the argument Mr. Scofield stated that this question was not cross-examination, but was for the purpose of bringing before the jury suggestions about what authors had stated and the adoption of opinions in books which could not have been read before the jury under other circumstances. He also suggested that none of the writers mentioned expressed positive opinion as to the different drugs, but repeat statements of previous writers. Mr. Hough insisted that his question was brought out by the question of Mr. Scofield. The Court finally ruled:

THE COURT:—I will sustain the objection to your question, and give you an opportunity during the adjournment tonight to add the qualities to these drugs that you wish to bring in by way of cross-examination and to eliminate the opinions of the authors. You may just add the additional qualities, such as that it would constipate the person who took it, give him a headache or something else. Then, if it is necessary to bring before the jury the source of your authority, it will be brought out by the other side. The objection to the question will be sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

(The following proceedings were had in the presence of the Jury.)

Mr. Hough: Q.—Doctor, having in mind those two medicines which have been referred to you, I want you to assume that they possess the properties which they were stated to possess, whether you think they possessed the properties or not; and I also want you to have in mind the effect of the combination of two drugs of the same character; and I wish to ask you whether in view of that you would change the opinion which you expressed on the direct examination?

Mr. Scofield objected to the question and after an argument the Court stated that he would instruct the jury that they may disregard every assumption of fact in questions put to the witness unless it had been proved to their satisfaction as a fact.

Mr. Hough: Q.—Now, will you answer, please?

A.—The termination of the question is, would it change my answer?

Q.—Yes. A.—No; with perhaps one or two slight particulars—or slight exceptions.

TONIC OR SEDATIVE

Q.—What are they? A.—In addition to the assumed virtues of these two drugs, the only other virtue that I recall in the long question that was propounded was that it was also a uterine tonic—the viburnum prunifolium was a uterine tonic. I had already assumed that it was a uterine sedative.

Now, with that addition, it would make some change in my answer; because a uterine tonic and a uterine sedative are directly opposed to each other; and I cannot assume them both, because they are antagonistic. I assumed that it was a uterine sedative. Now, if you ask me, in addition, to assume that it was a uterine tonic, it would change my answer to this extent:

That in certain forms of enlargement of the womb, like subinvolution that I described, if this drug, or the combination of the two drugs, had a uterine tonic effect, it would tone up and tighten down the uterine muscles, and might lessen the amount of flow, in an excessive flow. It might help to relieve the weight of an enlarged subinvoluted uterus, if it was a uterine tonic, as I illustrated by the use of ergot. In that way it would change my answer.

But, if I still assumed it was a uterine sedative, at the same time, my answer would be the same as it was in answer to the former question.

Q.—Do you mean to say that there is any difference in effect between the two, uterine tonic and the uterine sedative? A.—Yes, sir.

Q.—Don't you know it has been advertised as a uterine tonic and sedative? A.—Which?

Q.—Viburnum prunifolium? A.—I am not considering how it has been advertised; I don't know. I am only assuming certain things as facts, not what it has been advertised for.

Q.—Do you say there is any inconsistency in calling a tonic a sedative? A.—I think they are directly opposed to each other. A sedative is a soothing, quieting preparation. A tonic is a toning, building up, strengthening preparation.

Q.—Would you say that such medicine is of no value in cases of irregularity? A.—No, I would not say so. I did not say so on the former question.

Q.—You say it is of some value for that? A.—I might add I have used one of the ingredients you have spoken of for that purpose, when I had in mind that it possessed certain sedative action, and, on that assumption, I thought it was of some value, until I found out that it was the alcohol it contained that was of value; and then I dropped it.

Q.—You would say the same of exaggeration and suppression; it has value in those cases—this medicine we have described? A.—Well, it depends upon which of the assumptions I am to take. It would have some value in suppression, if it is a uterine tonic; it might have, if it was taken, a teaspoonful every hour, 55 per cent. of alcohol; I think it might stimulate more flow, in suppression. If it is a sedative, it might have a quieting effect and might lessen the amount of flow; especially if it was in a nervous, irritable state of the patient.

Q.—Would it have any value in menstrual irregularities and uterine and ovarian troubles, when not caused by constitutional deformity or that do not require surgical treatment?

Mr. T. J. Scofield:—That I object to, if the Court please.

THE COURT:—Read the question.

(Question read.)

THE COURT:—He may answer.

Mr. T. J. Scofield:—Exception.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—It would depend entirely upon whether the underlying cause of the menstrual irregularity was due to something that a uterine sedative or a uterine tonic could influence in any way. Many of the cases of irregularity, as I stated before, are due to such things as polypi, such things as inflammation of the lining membrane, such things as a general pelvic inflammation; in conditions of that kind, such medicine, whether a uterine tonic, or a uterine sedative, would have no effect in curing, but might temporarily relieve, especially if it was in the form of a fluidextract, or in the form of any alcohol, in sufficient amount to obtain the narcotic effect of the alcohol; just as gin in hot ginger, for instance, will often have the same effect, have a temporary soothing effect.

Mr. Hough: Q.—Did you say polypus? A.—I beg your pardon?

Q.—Did you say polypus? A.—What—polypus?

Q.—I did not catch the word? A.—I said polypi.

Q.—Oh, polypi? A.—Yes.

Q.—That would require surgical treatment, wouldn't it? A.—Well, I think it would be good treatment to remove the polypi rather than treat them therapeutically with some medicine.

Q.—Well, I excluded that kind of a case. That is a case that would require surgical treatment, and I excluded that kind of a case. Would it be good in all other kinds of cases? A.—All other cases—well, if you exclude all cases that have any structural change, what would you have left?

Q.—Quite a number—things for which you prescribe— A.—I would like to know definitely what you mean, and then I can give an intelligent answer.

Q.—Do you mean to say that there are no cases of menstrual irregularities and uterine and ovarian troubles which do not require surgical treatment? A.—Yes.

Q.—You mean there are some that do not require it? A.—Yes, a large number that do not require it.

Q.—Now, such a medicine as I have described would be good in that class of cases, wouldn't it? A.—It depends upon which particular kind you mean. Suppose—

Q.—Which generally require— A.—Suppose for instance we had, as in Chart B, which does not require surgical treatment, but requires mechanical support, and the displacement was producing marked irregularity and painful menstruation. It does not require surgical treatment, but it requires mechanical support.

Q.—Well, with mechanical support, would such a medicine be of any assistance in addition? A.—It might be, if it contains enough alcohol to narcotize the patient, and during a painful menstruation it might have an effect, and if you assume, in addition to that—

Q.—I am talking about the medicine, not the alcohol. A.—Well, alcohol is one of its ingredients. I was about to say, if, in addition to that, you assume its uterine sedative effect—a uterine sedative would be indicated for the painful menstruation that such a condition as that brought about.

Q.—Would it be of any value in any case of vaginitis? Any case of vaginitis? A.—I do not know of any case of vaginitis where a medicine such as you have described would be beneficial.

Q.—Are there any cases of vaginitis which can be cured by medicine at all, without surgical treatment? A.—Yes. I think a simple vaginitis, due to a nonvirulent infection, the simple catarrh of the vagina that produces simple whites, may be cured with any simple tonic medicine, by cleanliness and douches and proper local treatment;

whether you take medicine or not those cases get well; but I think the medicine that contains alcohol would be contraindicated in those cases, on account of its exhilarated, sort of so-called stimulating effect.

Q.—Wouldn't that depend upon the amount of alcohol in the medicine? *A.*—Yes, and the frequency with which it was taken.

Q.—If you had only such amount as is quickly oxidized in the system, it would not have a deleterious effect, would it? *A.*—I think it would have a very deleterious effect. That has been positively demonstrated in certain forms of vaginitis, due to certain specific irritants, certain specific germs.

Q.—Would it have as bad an effect as the same medicine given in 55 per cent. of alcohol? *A.*—As far as the alcohol was concerned, the larger amount of alcohol, the worst effect it would have upon any inflammatory condition.

Q.—So that you would say that fluidextract, for instance, of viburnum prunifolium, which contains 55 per cent., would be contraindicated, in any case of vaginitis? *A.*—In any case of vaginitis, or any form of inflammation, it would.

Q.—No matter what caused it? *A.*—In my opinion it would. It is always caused by infection.

Q.—What would be the smallest amount of alcohol which would not have a deleterious effect in that kind of a case, with a tonic which would be beneficial? *A.*—Well, I would not use alcohol in any quantity, if there was any local inflammatory condition existed.

Q.—You would not use a liquid medicine? *A.*—Yes, I would use a liquid medicine, but a nonalcoholic liquid medicine.

Q.—Well, what liquid medicines have you been in the habit of using in those cases? *A.*—In those cases?

Q.—Yes. *A.*—For a simple vaginitis, I have never been in the habit of using any form of medicine internally. There is no indication for any medicine internally; unless there is some other collateral condition of anemic trouble or a bowel condition, or a stomach disturbance; there is no reason why you should not use some form of medicine internally if they need it, while you are treating the vaginitis, which is a purely local inflammation; the same way as if you had an inflammation of the hand, you would not use a medicine internally, but, if you did have any other purpose for using it, you would avoid stimulating—a stimulating mixture, on account of its tendency to increase the blood flow to the capillaries, which would tend to make the inflammation more marked.

Q.—Would you have them take douches? *A.*—Sure. I would use hot douches, if there was a vaginitis, and I would use a medicated douche containing some antiseptic, depending upon the state of the inflammation, and the character of the discharge, as determined by microscopic examination of the secretion to see what particular germ was in it; as to whether it was a simple nonvirulent infection that caused it, or whether it was a gonorrheal infection that caused it, and my application of the germicide or the antiseptic would depend upon the character of the germ that was producing the inflammation.

Q.—And if the person was anemic or run down, a tonic would be indicated also, would it? *A.*—Why, certainly, yes.

Q.—What is the most common cause of falling of the womb or prolapse? *A.*—Why, the most common cause, I believe, is a removal of the supports of the womb from below.

Q.—Well, would you say that is child-bearing—due to child-bearing? *A.*—Well, that is one of the effects sometimes of child-bearing, unrepaired lacerations following childbirth.

I would not say definitely that that alone is the most common cause, as they usually work in combination. That, with an increased weight, is together the most common cause of uterine prolapse.

Q.—What is the principal cause of inflammation? *A.*—Infection.

Q.—Always infection? *A.*—Yes.

Q.—What character of infection? *A.*—It may be due to the staphylococcus or the streptococcus, or the gonococcus, or the various micro-organisms, too numerous to mention.

Q.—Well, what would you say would be your treatment in such case? *A.*—It depends upon the particular germ that was producing the inflammation. I have just stated in an answer or two ago that if you had a nonvirulent germ, sometimes a simple antiseptic douche of boracic acid, or a lysol douche two or three times a day in hot water, with simple saline laxatives that would tend to lessen the congestion of these parts—just the opposite to what a stimulant would do, that would drain away—and that application applied to the vagina and to the neck of the womb, glycerin, that takes water away from it and helps to get the congestion out of the parts—that line of treatment, with rest and avoidance of exercise that helped to bring congestion about to those parts—that, usually in the simple cases, will result in a cure.

Whereas, in the virulent cases, as I have repeatedly stated, you must put a nitrate of silver solution, argyrol solution, which is another silver preparation, or some strong preparation to these parts, to destroy and kill the germ that is producing the inflammation; and then a soothing wash afterward, and the other treatment that I have described. To kill the germ that is making it, is the underlying treatment for the inflammation.

Q.—And, if a person is run down, you would say a tonic would be indicated? *A.*—Why, certainly; that is, for the run down condition, but not for the inflammation.

Q.—What is ovaritis? *A.*—Inflammation of the ovaries.

Q.—Is that a surgical treatment, or a therapeutic treatment? *A.*—Surgical condition, do you mean?

Q.—Sir? *A.*—You said surgical treatment, I understood.

Q.—Would that require a surgical treatment? *A.*—In some cases, but a great many cases it would not. It depends upon the stage of the inflammation, the result of the inflammation and the local condition of the ovary, as to whether it is a medicinal case requiring therapeutic treatment, or whether it requires local mechanical treatment, or whether it requires surgical interference.

Q.—Well, take the case that does not require surgical treatment; what would be your treatment of that? *A.*—Well, there are so many different cases that do not require surgical treatment. For instance, you may have just a neuralgic condition of the ovary; you may have a slight thickening of the capsule covering the ovary, as the result of repeated congestion, without inflammation; that when the period of menstruation occurs the thickened capsule interferes with the rupture and permission of the ovule to escape out onto its surface and pass down through the tube. That will produce pain, the pain that comes on one or two or three days before the menstrual period; localized usually on one side; sometimes referred to as neuralgia of the ovary.

Q.—Well, now, what is the treatment? *A.*—The treatment would be to soothe the pain, to give some quieting medicine, then ask the patient to keep quiet and still; to use hot injections to draw blood away from the part, by drawing the blood down to the neck of the womb, and so on, and relieving it—put the hot water bag to the abdomen, and using saline laxatives to relieve pelvic congestion, and the internal use of paregoric or bromid, or something of that sort.

Q.—Would a uterine sedative be of any advantage? *A.*—Yes; all those things would have a general sedative effect, and, as a result of that, would have a general sedative effect upon the neuralgia or uterine or ovarian pain.

PREGNANCY

Q.—Doctor, will anything in the form of medicine make childbirth any easier for a woman? *A.*—Yes; chloroform will.

Q.—No; I am not talking about cutting her throat, or anything like that. *A.*—No. I say chloroform inhalation—

Q.—I don't mean that. If a woman is well, doesn't she go through the period better than if she is sick or weakly? *A.*—Well, I think so, sometimes; and sometimes the opposite is true.

Q.—Is there not a difference in the number of hours that they are in labor? *A.*—Yes; it varies a good deal, but it does not depend upon whether a woman is well or strong, or whether she is weak and sickly.

Q.—If she is well and strong, she goes through it better than if she is weak and sickly, doesn't she? *A.*—Very often it is just the opposite.

Q.—You mean if she is weak and sickly she goes through it better than if she is strong? *A.*—No, not better, but she does not have as much pain. The strong and healthy women that have the hard bearing down pains are more apt to suffer more than a weakly, sickly delicate woman will, who is not capable of the muscular effort that is necessary to expel the child. There is no definite rule about this.

Q.—If an apparently strong and healthy woman has a great deal of pain in that process, wouldn't it indicate that something was wrong with her? *A.*—No.

Q.—She ought not to have it, ought she? *A.*—She ought to have it; it is natural.

Q.—She ought not to have as much pain as some of them have? *A.*—It is natural for them to have pain.

Q.—Some pain? *A.*—Yes, a good deal of pain.

Q.—But not as much as some of them have? *A.*—They vary; there is no definite rule. It depends upon the relation of the child's head to the size of the pelvis, and the muscular and general tone of the individual; and I have seen perfectly normal, healthy women have almost unbearable pain, when I could detect no cause, except that they were strong and well, and it took, owing to the tightness of the muscle of the uterus itself, hard work to get the neck of the womb open. And I have seen the opposite in delicate frail women that have passed through it, it seemed to me with hardly any effect. As I said, there is no definite rule.

Q.—Did you ever give any medicine during pregnancy? *A.*—Why, certainly.

Q.—For what purpose? *A.*—Oh, for a great variety of purposes. Women are very apt to have disturbances during pregnancy, and they need particular care and particular forms of medication during pregnancy. One of the most common things that is called for is the use of the proper form of laxative remedy. Women have some tendency to suffer from constipation during pregnancy. It is supposed to be due to the fact that the enlarged uterus presses against the bowels and sort of interferes with the normal tone and the normal periodical action of the bowels; and, in the use of medicines for that purpose, we have to be particularly careful not to give medicines that would cause congestion of the pelvic organs, like aloes, and certain drugs that stimulate the lower tract, but rather some drug that acts higher up, like cascara, or senna, or something that acts on the small bowel. Saline laxatives are often good, and especially if a woman is pretty full blooded. Of course, for pale, anemic women we do not use saline, because it extracts too much water from the blood. That is one sample of the kind of medicinal treatment that is necessary during pregnancy.

Then there are every conceivable thing, from morning sickness, for which every drug in the pharmacopeia has been recommended—and perhaps black coffee before breakfast is as good as any of them. There is no specific thing that will cure the vomiting of pregnancy; one thing will answer in one woman and another thing in another, because it has had such a variety of causes.

And then when you get along in pregnancy you get other pressure symptoms; I think I referred on Friday to the kidney symptoms, which is perhaps one of the most important that calls for close watching, close management; sometimes intercurrent hemorrhages occur, also, and also displacement of the placenta; and almost innumerable complications that may occur during pregnancy that call for close and careful examination.

Q.—In addition to a laxative, Doctor, are any general tonics ever indicated in such conditions? *A.*—Why, yes; if a person is both anemic—if the stomach is atonic—as we sometimes term it—the appetite is poor, if they have bronchial affection, or any weaknesses in their chests, phosphates and emulsions of one kind and another are indicated

—just the same conditions as are present as when they are not pregnant, demand the same treatment.

Q.—Would a uterine tonic ever be indicated during that period? *A.*—Well, I do not know of any condition where you would dare give a tonic to the uterus while it contained its fetus, for fear the tightening up and contracting effect would cause a premature contraction, which always exists—that is, there is a regular rhythmic contraction going on all during pregnancy; and, to use medicine which had a tonic effect, which means to tone up that uterus, would be very dangerous treatment, for fear of so toning it up as to separate the after-birth from the inside of the uterus, or rupture the membranes and induce a miscarriage or premature labor.

Q.—Don't they give medicine to prevent a miscarriage? *A.*—Yes, I think some people do. I do. That is, I would if there was any indication for it.

Q.—And they give uterine tonics to prevent a miscarriage? *A.*—I do not think they give uterine tonics to prevent a miscarriage. They give the very opposite.

Q.—What do they give? *A.*—Bromid potassium, hypodermic morphia—they give opium suppositories, they give paregoric, where there is any tendency to much action on the part of the uterus; they usually elevate the foot of the bed, so that the blood will run toward her head; they give some kind of suppository, opium, or other. They give the very opposite to a uterine tonic to quiet that action, in the hope that the pains, on her taking something of that kind will gradually subside under the influence of the sedative.

Q.—Will you say that the opposite is a uterine sedative? *A.*—Yes, a uterine sedative would be the direct opposite of a uterine tonic.

Q.—Then anything which is a uterine sedative would be indicated in that condition? *A.*—Anything that is a general sedative. I know of no uterine sedative per se, but has a part of a general sedative effect in lowering the excitability of the spinal nerve centers, like bromids, like opiates, like belladonna, medicines that will have that soothing effect, and the same effects that I was asked to assume in this case were possessed by viburnum, that it had a soothing, antispasmodic effect; that is that effect that would be indicated.

Q.—To prevent a miscarriage? *A.*—To prevent uterine contractions that may result in a miscarriage.

Q.—Therefore it would be good during pregnancy? *A.*—If it had that effect, yes—if there was any tendency to miscarriage.

Q.—Doctor, would you say—

THE COURT:—We will stop now, gentlemen, till 10:30 in the morning, in this case.

An adjournment was taken until 10:30 o'clock a. m., of Tuesday, April 11, A. D. 1916.

April, 12, 1916, Morning

The Court met pursuant to adjournment on April 11, on which day no evidence was offered. Dr. John Leeming resumed the stand.

FURTHER CROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, do you know how many pharmacopeial preparations contain alcohol? *A.*—Not exactly.

Objection was made to this question, the court ruling that the witness might answer. He was then asked:

Mr. Hough: Q.—Do you know how many pharmacopeial preparations contain more than 20 per cent. alcohol?

Objection to this question was made by Mr. Scofield on the grounds that it was immaterial. Mr. Hough argued the question stating that the purpose of his query was to test the value of the witness' opinion as to effect of the alcohol in Wine of Cardui as compared with that in other preparations. The Court ruled that the witness might answer, stating that it is not desired, however, "to open up the door to the whole pharmacopeia." The witness finally answered:

The Witness:—I do not know exactly how many pharmacopeial preparations contain alcohol, but I think I do know the number that contain more than 20 per cent.

Mr. Hough: Q.—How many? *A.*—I think about seven.

Q.—I don't mean— *A.*—Do you mean by volume?

Q.—I mean the percentage of alcohol. I am not referring to the dosage. *A.*—Oh, I see. Oh, yes. I do not know how many there are, but there are a large number that contain more than 20 per cent. alcohol.

Q.—Now, is it your opinion, Doctor, that the alcohol in those pharmacopeial preparations which contain more than 20 per cent. would have a different effect upon the patient than the alcohol that is contained in Wine of Cardui? *A.*—So far as the effect of the alcohol in itself is concerned, it would have the same effect regardless of the other contents.

Q.—Then, if the effect of 20 per cent. alcohol in Wine of Cardui would be what you have testified to on direct examination, it would likewise have the same effect in every other pharmacopeial preparation that contained as much as 20 per cent. alcohol? *A.*—As I understand it, the physiological action of alcohol is the same regardless of the other ingredients that go with it, and whether it is in Wine of Cardui, or tincture of nux vomica or tincture of opium, so far as the alcohol is concerned in a given amount, its physiological action would be the same.

THE COURT: *Q.*—Well, could you give the alcohol in such a combination that the other drugs would neutralize or offset (so far as the physiological effect is concerned) the action of the alcohol? *A.*—Yes, that might well be. That is, if you have alcohol in 20 per cent. solution that is given in tablespoonful doses, that represents 48 drops of pure alcohol. If, in combination with that alcohol, there is a medicinal solution that has no marked, potent action, that will not interfere with that mixture being used in unlimited quantities.

If, on the other hand, you have a solution with 20 per cent. alcohol that contains some potent drug like the two I mentioned (opium and nux vomica or various others), there is something in the 20 per cent. solution that will prevent its being used in large quantities, so that there would be no danger of getting any more than the effect, ordinary effect of the alcohol. But where there is no potent drug and the main physiological action of the combination is that of the alcohol, it may be used in unlimited quantities because there is nothing in it to prevent the habit developing tendency of alcohol.

Mr. Hough:—I ask that that answer be stricken out as not responsive.

THE COURT:—Yes, it may be stricken out.

To which ruling of the Court the defendants, etc., excepted.

THE COURT:—I think the witness did not understand the question put by the court. What I intended to ask you was, whether alcohol could be used in combination with certain drugs that would offset or counteract the effect of the alcohol. *A.*—Yes, I think possibly it could. That is, a drug that was a direct sedative, combined with the alcohol, which is a diffusible stimulant, the physiological action of the two would be—would neutralize to some extent, each other.

Mr. Hough: Q.—Take the action of ergot. Do you know how much alcohol there is in that? *A.*—In which particular preparation do you mean?

Q.—Wine of ergot. *A.*—Do you mean the wine or the fluidextract?

Q.—I am asking you first about the wine of ergot, and then I will ask you about the fluidextract. *A.*—I do not know exactly what proportion there is in the wine of ergot; I never used the wine. I always used the fluidextract or the active principle of ergot.

Q.—How much is there in the fluidextract? *A.*—In the fluidextract, about 50 per cent.

Q.—And what is the dose, the maximum and minimum dose? *A.*—Ten minims is about the minimum dose, though it is sometimes used in smaller quantities. The maximum dose, the very maximum dose, I should say would be a dram, though according to the pharmacopeia, I think the maximum dose is 20 to 40 drops, but I am not quite sure as to what the pharmacopeial dose is.

Q.—Will you tell the jury what a dram is? *A.*—A dram is approximately 60 drops, or a teaspoonful.

Q.—Now, in that there is the same amount of alcohol that there is in whiskey of that proof, isn't there? *A.*—Yes.

Q.—So, in a teaspoonful of that they would get the same volume as in a teaspoonful of whiskey? *A.*—Yes.

Q.—Now, do you say that the alcohol in that would not have the same effect as the alcohol in a teaspoonful of Wine of Cardui? *A.*—So far as the physiological action of the alcohol is concerned, it would be the same in whatever preparation it was used, unless it was neutralized by the action of the drug and, in neither of the illustrations suggested (so far as I know) is it at all neutralized by the action of the ergot or the contents of the Wine of Cardui.

Q.—Doctor, you have stated that there are no such things as medical authorities. Are there any such things as standard medical works?

Mr. T. J. Scofield:—That is objected to as not cross-examination.

THE COURT:—He may answer:

To which ruling of the Court the defendants, etc., excepted.

A.—Well, from my point of view there are.

Mr. T. J. Scofield:—Wait just a moment, Doctor.

Mr. Hough:—The Court has said he may answer.

Mr. T. J. Scofield:—All right, go ahead.

The Witness:—I have answered it.

Mr. Hough: Q.—Would the authors whose names I included in my hypothetical question, and the works referred to therein, be considered standard medical works?

Mr. T. J. Scofield:—That is objected to for the same reason.

THE COURT:—What was the answer to the other question?

(Answer read as follows: "Well, from my point of view there are.")

THE COURT:—I think you had better enumerate them, Mr. Hough. The witness may recall all that you put in your hypothetical question, covering a period of 45 minutes or so, but the court does not, and I am pretty sure the jury does not.

Mr. Hough:—I will ask first if the witness recalls the names of any of them? *A.*—I recall some of them, quite a number of names.

Q.—Would you state which of the names you recall you would regard as standard medical works?

Mr. T. J. Scofield:—That is objected to if the Court please.

THE COURT:—Ought you not to put the preliminary question first Mr. Hough, as to whether or not the witness relies on any of those works in expressing his opinion?

Mr. Hough:—I was going to come to that. First, I want to get an idea of what he regards as standard works. He says there are such standard works.

THE COURT:—If, in expressing his opinion here he places no reliance upon the so-called standard works, you are not in a position to cross-examine him about the standard works, so called.

Mr. Hough:—I had not reached that part of it.

THE COURT:—Why not put the essential question first? Because if you do, we can stop this branch of the examination, if he says that he does not, or has not, in giving his opinion, relied upon any so-called standard work.

To which ruling of the court the plaintiffs, etc., excepted.

Mr. Hough:—Very well, I will put that question first.

Q.—In giving your opinion, have you relied on any—or taken into consideration, any of the so-called standard works? *A.*—Do you mean on any of the subjects that I have been asked to give an opinion upon?

Q.—Yes. *A.*—Or in reference only to the action of drugs?

THE COURT:—On any subject. *A.*—On any subject?

THE COURT:—Yes. *A.*—I have not based my opinion upon any standard works, so-called, though I have had those works and the views expressed by those writers in mind in a general way, in forming my judgment on those various questions.

THE COURT: *Q.*—Now, will you enumerate, as you recall them, what authors you had in mind, what works? *A.*—With reference to the question of drugs and their physiological action, I have had in mind the National Dispensatory as descriptive of the drugs. I look upon that as standard, so far as the description of the drug is concerned. I have had H. C. Wood of Philadelphia in mind. I have had Shoemaker in mind; I have had Hobart Hare in mind; I have had the United States Pharmacopeia in mind, so far as its description of drugs is concerned, but not as to the therapeutic value of the drugs.

I have had Culbreath in mind, and Biddle in mind and Butler and Potter and I think probably some others, whose names do not occur to me just at this moment.

Mr. Hough:—Now, which of those, Doctor, agree with your statement which you made about viburnum prunifolium?

Mr. T. J. Scofield:—That is objected to, if the Court please.

THE COURT:—The objection is sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: Q.—Which of those authorities, Doctor, did you have in mind when you testified as you did, about viburnum prunifolium?

Mr. T. J. Scofield:—That is objected to, if the Court please. The doctor has not said that he based his opinion upon any of those books.

THE COURT:—If he recalls, he may answer.

To which ruling of the Court the defendants, etc., excepted.

The Witness: A.—I did not have any of them in mind as an authority on the subject, but as standard writers I had a number of them in mind who stated, as I have stated, that viburnum prunifolium was reputed to have certain effects as a sedative, as a sedative to the spinal cord, as a medicine which would lessen reflex excitability and irritability. I had another writer in mind who stated that it acted as a uterine sedative. Do you want me to name the individual ones each time?

Mr. Hough:—I would be glad to have you do so. *A.*—I think Bartholow and Shoemaker are the two writers that I look upon as standard writers who made the first statement that I have mentioned. I had another one in mind by the name of Jenks who made the statement that viburnum prunifolium was reputed to be a uterine sedative and the opinion that I expressed, that when I used it, I used it because it was reputed to be a uterine sedative—I agreed with it at that time before I had experimented or tested it out further and satisfied myself that it was not. Those are the writers that I had in mind.

Q.—Which of those writers did you have in mind, if any, as supporting the views which you now give as to viburnum prunifolium?

Mr. T. J. Scofield:—That is objected to. The doctor has stated that he did not base his opinion upon any of these writers, but upon his personal experience.

THE COURT:—The witness, as I understand it, entertains at this time a very different view of viburnum prunifolium than he did originally, when he began to use it and I do not understand the witness to have told us that there is any authority for his present view, except his own experience.

Mr. Hough:—I do not think that has been stated, and I think I am entitled to ascertain it. He said that he made the statement he did, having in mind the statement in certain medical works.

THE COURT:—Put the question directly to him as to his present views as to viburnum prunifolium.

Mr. Hough:—I have put the question to him as to his present views, but—

THE COURT:—Ask him if he bases them upon any authority?

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. Hough: Q.—Did you have in mind any of those authorities as supporting your views with reference to viburnum prunifolium?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—Not the authorities that I have mentioned, but other standard authorities—or standard writers. By that I mean—when I made the statement, standard writers, I mean men whose opinions I respected and whose views I considered in forming my opinion. I had others in mind that did agree and do agree with the opinions I hold now in reference to the action of viburnum prunifolium.

Mr. Hough: Q.—Now, will you name the medical textbooks or medical books which express those views? *A.*—I don't base it on any medical textbooks. I base it upon the actual pharmacological and clinical demonstration which proves conclusively the action, or lack of action of this drug, regardless of its reputed action.

Q.—Then you mean that you exclude all the medical textbooks referred to and base your opinion only on some report of some doctor? *A.*—No.

Mr. T. J. Scofield:—Wait a moment; I object to that question. The witness has already stated on what he bases his opinion.

THE COURT:—The witness has answered "no" and it might as well stand. We will save time.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—Do you mean to state, Doctor, that you consider a negative pharmacological test as to the action of a drug, a vegetable drug, as conclusive as to its therapeutic value? *A.*—I mean to say that a negative, pharmacological test taken in combination with an affirmative and positive clinical test, and positive demonstration, is conclusive evidence. One alone might not be conclusive, but in combination with a negative, pharmacological test, and a positive clinical test that is capable of demonstration, that can be seen and felt and is not the reputed action that somebody supposed was there, but is capable of proof, that can be seen, that is positive evidence, and that is the sort of evidence I base my opinion on.

Q.—Well, suppose you used the words "positive and negative" in this sense; not securing any results, that is a negative test. Positive tests, securing results. Now, would you say that a negative test demonstrates the worthlessness of any vegetable drug?

Mr. T. J. Scofield:—That is objected to, if the Court please, as already answered.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—Just taking the negative effect alone might not be positive proof. It depends upon the particular action you were looking for. If you are looking for the action of a poison, a negative test would be conclusive. But, if you were looking for the action of a slight sedative, a negative test might not be sufficient to positively demonstrate it. It would require the corroboration of some more definite affirmative evidence and that is the reason I combined the two together in this case and did not rely upon a negative, pharmacological test.

Mr. Hough: Q.—Now, to understand the use of the term as applied to tests on rabbits or dogs, if it is tested in the pharmacological way and kills the dog, or creates some abnormal symptom, that would be a positive test, would it not, as to the dog? *A.*—Which, if it killed the dog?

Q.—Yes. *A.*—Yes, that would be positive that it had killed the dog.

Q.—Or, if it created abnormal symptoms, out of the ordinary? *A.*—Well, that is a pretty general term. It would depend upon what sort of control tests were applied to see if it positively produced abnormal symptoms as a result of the experiment.

Q.—If, however, when tested subcutaneously, or by injection, or in the mouth in the proper way, there is no apparent effect, then you would call that a negative test, would you not? *A.*—Well, it would depend largely to my mind upon how you construe the apparent effect, whether it was observed microscopically or otherwise.

THE COURT:—Tell us this, Doctor; how do you define a negative test pharmacologically speaking? *A.*—I mean by a negative test—

Mr. T. J. Scofield:—Just a moment, Doctor. We have asked Dr. Leeming nothing upon the subject of pharmacological tests. He has not testified as a pharmacologist and we object to the question.

Mr. Hough:—Why, the witness has stated that he bases his opinion on pharmacological tests.

THE COURT:—He may answer.

To which ruling of the court the defendants, etc., excepted.

A.—By negative tests, pharmacologically, I mean that if two drugs are being experimented with, say on the action of a muscle, if one of these drugs (both of which are assumed to have some direct effect upon the muscle) and one drug is injected in the ordinary dosage into that muscle; the muscle is not only watched with the naked eye, but an instrument is applied to the muscle which registers its vibration and its every movement and, as a result of the one you get no response to the observation of the naked eye; no shortening of the muscle indicating contraction; no change in the color, indicating that the parts have been squeezed and become lighter in color; and the mechanical device which positively registers the movements, is perfectly negative in action, shows no response—then I conclude negatively that there is no action from that drug, while with the other drug I get just the opposite to those effects. The injection is made, the muscle contractions can be seen with the naked eye, the contraction can be accurately registered with an instrument of precision; the color of the organ or single muscle will change on account of the contraction, squeezing out some of the blood, and making it lighter in color. That would be positive, showing that the drug acted affirmatively and positively on that muscle, while the other was negative, showing no action.

Mr. Hough: Q.—Did I understand you to say, Doctor, that giving a medicine, a medicine containing 20 per cent. alcohol, in tablespoonful doses would lead to an alcoholic habit? A.—I did not make any positive statement to that effect. I simply said that it might lead to an alcoholic habit, if there was no drug combined with the 20 per cent. solution that would prevent the continued use and in unlimited quantities of the alcohol which contained this impotent drug. Then it might be used, as soon as the exhilarating effect of the alcohol was perceived by the patient and the apparent bracing up effect of it was experienced, and no other effect that would interfere with its continued use—such an individual would take bigger doses and begin to feel more exhilarated and in that way the habit would be developed.

Q.—I don't think you quite understood my question. A.—Beg pardon?

Q.—I am talking about the effect of a single dose. Do you say that the giving of a single dose of a medicine containing 20 per cent. alcohol would tend to lead to the alcoholic habit? A.—By single dose, you mean how much of the 20 per cent. solution?

Q.—Say a tablespoonful. A.—I do not think for a moment that a single dose would have any such effect, a single dose.

Q.—Would that dose influence the patient to want another dose? A.—Not a single dose, no.

Q.—How much would the percentage of alcohol have to be increased, in order to have a single dose induce the habit or create a desire for a second dose—

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—in your opinion?

THE COURT:—Recollect now that the dose is a tablespoonful. You may answer.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough:—How much— A.—As I understand it is a question—

Q.—How much more alcohol must there be in it? A.—In a tablespoonful?

Q.—Yes. A.—It would not make any difference if it was all alcohol. A single dose would not induce a habit.

Q.—A single dose would not induce a desire to repeat the dose? A.—I do not think a single dose would if it was all alcohol.

Q.—Do you want to make a correction as to your statement about Liquor Sedans? A.—Why, yes. I had another preparation in mind, made in St. Louis, as I think I said, called Bromidia and in giving what I remembered as the composition of Bromidia, I did that in answer to your question as to what Liquor Sedans contained. I was thinking of another medicine that was made in St. Louis, as I stated. The contents of Liquor Sedans is different from what I stated. It contains viburnum and hydrastis and dogwood, in alcohol.

Q.—(Handing the witness a bottle). Is that the—

Mr. T. J. Scofield:—I object to that.

THE COURT:—There is no question yet to object to.

Mr. Hough:—I was only trying to help the witness.

The Witness:—Thank you.

Mr. T. J. Scofield:—Nobody knows whether this is Liquor Sedans or alcohol and mustard or what. There is no evidence—

THE COURT:—This all results from a question asking the witness if he wanted to make a correction.

Mr. T. J. Scofield:—Yes, and he made the correction.

Mr. Hough:—No, he has not.

THE COURT:—He was not through. Proceed.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—Now, will you state what it is, Doctor. A.—I thought I just did state that it contained viburnum prunifolium and Jamaica dogwood and hydrastis and some aromatics in an alcoholic solution.

Q.—In what per cent. of alcohol?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may tell.

To which ruling of the Court the defendants, etc., excepted.

A.—I think 30 per cent.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—Doctor, when you stated that the hypothetical medicine which you were interrogated about both on the direct and cross-examination, would not have any effect in any form of falling of the womb, upon what reason do you base that opinion?

Mr. Walker:—That is objected to. That was all legitimate on direct examination, but I think he has already given it.

THE COURT:—He may explain, if he wants to, and give his reasons.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—My reason for it is that in the hypothetical question I was asked to assume, there was nothing in the physiological action of the drugs described (even on the assumption presented to me), that could in any way change the position of the uterus or change it from a position of prolapse to its normal position.

Mr. T. J. Scofield: Q.—What have you to say as to the case of anteversion or anteflexion?

Mr. Hough:—That is objected to for the same reason. This is direct examination.

THE COURT:—Hasn't he been all over that?

Mr. T. J. Scofield:—No, I did not ask him—I did not ask the reasons in some instances and I am only now calling attention—

Mr. Hough:—That was the time to ask the reasons even if he did not.

THE COURT:—No, because you brought it out on cross-examination, asking him the specific question which he answered "yes" or "no."

Mr. Hough:—But only based upon what he had stated on direct examination.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

Mr. T. J. Scofield:—Yes. Answer the question.

A.—For the same reason I gave in the last answer, that there is nothing in the action of the drugs that could act upon the ligaments to cause them to draw the womb back into its natural position after displacement.

Q.—When you stated that the hypothetical medicine would not remove the causes which produced retroflexion or retroversion in any of the ordinary cases, upon what do you base that opinion? A.—The same thing that I have just stated.

Q.—When you stated that the hypothetical medicine would not have any effect in cases of falling of the womb, in pulling the womb up, upon what do you base that opinion? A.—I base it upon the same thing.

Q.—When you say that in your opinion, the hypothetical medicine would not remove or absorb adhesions in case of displacements, upon what do you base that opinion?

Mr. Walker:—The same objection.

THE COURT:—Yes, that objection will be preserved to all of this, and the same ruling.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—Well, I base that upon this idea; that the hypothetical question assumed that the two drugs with the alcohol the composition contains, have a peculiar physiological action, but there is nothing in that physiological action that will absorb from the tissues an adhesion or the exudates that go to make that adhesion. For that reason I gave the opinion, my opinion, that there is nothing in the hypothetical solution that can absorb inflammatory adhesions.

Mr. T. J. Scofield:—When you stated, Doctor, that the hypothetical medicine which was described in the first hypothetical question, when used in connection with what has been designated as the knee chest position, would not result in the removal of the cause of sterility, upon what do you base that opinion? A.—That there is nothing in the physiological action of the drugs, as I am asked to assume their physiological action, that can change the cause which produces sterility or any of the various causes which produce sterility, that is the reason I gave that opinion.

Q.—Now, with reference to the—bearing in mind the questions which I have asked you, and applying the inquiry to inversion of the womb, please state why you gave the opinion you did. A.—The same answer which I gave to the last question will be my answer to that.

Q.—How about pyosalpinx?

Mr. Hough:—That is objected to.

THE COURT:—(Addressing counsel for defendants.) I think you have been over two thirds of this.

Mr. Hough:—And I never said a word about it on cross-examination.

Mr. T. J. Scofield:—On the cross-examination of Dr. Leeming, they asked certain questions as to these different conditions. He made his answer and there they dropped it entirely. They did not follow it further. Now I want to know the reason of the answer that he gave, with reference to these different situations which—

THE COURT:—I think you have a right to do it, but I am still of the opinion, that, on direct examination, he told us most of this.

Mr. T. J. Scofield:—No, he did not, if the court please. If he had, I would not ask these questions.

THE COURT:—Well, go ahead.

To which ruling of the Court the plaintiffs, etc., excepted.

(The question was then read.)

A.—Well, you are asking me for the reasons why I gave that opinion?

Mr. T. J. Scofield:—Yes. A.—The same reason applies that I have given to that question you have just asked me; because there is nothing in the hypothetical medicine you have assumed, even taking into consideration the virtues you have attributed to its ingredients, that could in any way act upon pyosalpinx to remove it or cure it.

Q.—Let me group three or four of them: ovarian abscess, menorrhagia, metrorrhagia and amenorrhea. What answer would you give? A.—I cannot answer that question as grouped. I can answer it so far as any physical structural change is concerned, like ovarian abscess. But with reference to menorrhagia and things of that kind, there are cases of menorrhagia where a medicine which has the virtues assumed, that you have assumed this medicine has, might give some temporary relief.

Q.—Why? A.—Which I have explained, because you have asked me to assume that it contains a uterine sedative; that it contains a medicine which lessens the reflex excitability and acts as a sedative to the spinal cord; and that it contains 20 per cent. alcohol, the equivalent of 48 drops. Now I know of certain forms of dysmenorrhea and some functional perversions of menstruation where that combination might possibly afford some temporary relief, where it is not necessary to get at, to undo and correct some underlying structural change or physical cause. I

think I described it as a sort of neuralgic, colicy or spasmodic dysmenorrhea, the form for which we use gin and hot water as a temporary relief for a few days while the flow becomes established. That is the view I hold in regard to it, assuming that they have the properties you have attributed to them.

Q.—In case a woman has what is frequently called the whites or leukorrhea and she notices some discharge of blood with it, that it is slightly tinged with blood, would there or would there not be any danger in the use of such a hypothetical medicine? *A.*—There would—

Mr. Hough:—Just a moment; that is an objectionable question.

The Witness:—There might.

Mr. Hough:—I would like to have the witness always wait and give me a chance. That is not the point as to whether there is any danger in pursuing one course as against another course.

THE COURT:—No, but this was a specific danger from a specific course.

Mr. Hough:—This is simply asking him whether it is better to pursue one form of treatment, or another form of treatment. This does not involve the question of the ingredients of this medicine.

THE COURT:—It involves only the danger of the use of this hypothetical medicine for this specific disorder.

Mr. Hough:—I am perfectly willing to admit that every witness they put on the stand will say—

Mr. T. J. Scofield:—I am not asking Mr. Hough for any admission or any speech.

THE COURT:—Objection overruled.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—Where a symptom like whites is present, and is tinged with blood as stated, the presence of blood in that discharge, may be an evidence of some serious condition, such as cancer of the neck of the womb, and the use of a medicine that is soothing, as described in the hypothesis, and is somewhat narcotic on account of this stimulant and may permit such a patient with such a condition as shown by such symptom of whites and blood—may permit the patient to go on using the soothing, narcotizing and exhilarating medicine, until the condition has advanced to such a stage that it is beyond removing.

THE COURT:—Now, I undertake to say, Mr. Scofield, that on your direct examination, or the cross-examination, you will find that identical answer in almost the identical terms.

Mr. T. J. Scofield:—Well, I don't recall it. If it was drawn out, I don't recall the fact.

Q.—Doctor, in your opinion, will such a medicine, as has been described to you hypothetically, kill the germs of malaria? *A.*—No, it will not.

Q.—Why, not? *A.*—Because it has not the power, it has not the physiological properties that will enable it to destroy this plasmodium.

RECROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, did I understand you to say that you have never used the fluidextract of carduus benedictus in your practice? *A.*—That is what I stated, yes.

Q.—You have never tested it out in that way at all in your practice? *A.*—No.

Q.—Now, do you mean to say that no drugs are ever given in any of these cases that Mr. Scofield has just asked you about? *A.*—No, I do not mean to say that.

Q.—You mean to say that drugs are given in those cases don't you? *A.*—Yes, when drugs are called for in those cases for other conditions which complicate or accompany these conditions. Drugs are not given to cure this structural condition, but drugs may be given for other conditions which accompany this condition, as I explained before.

Q.—You mean that structural conditions require some operation or mechanical interference? *A.*—Structural? They may or may not. There are a number of structural conditions shown on the charts which do not require operation.

Q.—What do you call "operation?" *A.*—I am using it in the sense of a surgical procedure, a cutting operation, not a mechanical support.

Q.—Putting in a mechanical support, you would not regard as surgical? *A.*—No.

Q.—In any sense? *A.*—Well, it depends upon in what sense you construe it. It is a mechanical procedure, it comes under the head of mechanical surgery, but not in the same sense as operative surgery.

Q.—In addition to operation or the mechanical surgery, or whatever you choose to call it, medicines are given, aren't they by the mouth?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

A.—They are given for other conditions of the patient, generally for local conditions of the stomach or bowels or anything that is called for by the local or general condition of the patient, but not for the structural changes.

Mr. Hough: Q.—Doctor, in order to ascertain your meaning a little better; any trouble with the eyes will cause a headache, won't it?

Mr. T. J. Scofield:—I object to that as not a recross-examination.

THE COURT:—I think we went over all the eye-headache proposition the other day.

Mr. T. J. Scofield:—Yes, he went over it.

Mr. Hough:—Did we, with this witness? I think not, your Honor. I did ask him something about what he meant by the use of the word "cure" or whether a thing is given for one condition or another condition; but it occurred to me that this illustration might better elucidate the witness's attitude with reference to the meaning of the word "cure" and whether a thing is given for one condition or another condition.

THE COURT:—I was trying to find out who had any doubt as to what the witness meant. The witness does not want to explain. Do you think this is necessary to his answer? Do you think it is ambiguous?

Mr. Hough:—I think it possibly might be a little confusing to the jury.

THE COURT:—I doubt it.

Mr. Hough:—I think I know what he means, and if the jury think it knows, why all right. May I ask with reference to this?

THE COURT:—It seems to me that we are not getting anywhere. We have been over the question of what will cure—at least what the witness means by the word "cure," and we spent a good deal of time on that.

To which ruling of the Court the plaintiffs, etc., excepted.

TESTIMONY OF DR. J. CLARENCE WEBSTER

Dr. J. Clarence Webster was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. J. C. Webster testified that he graduated at the University of Edinburgh in Scotland in 1888, became Bachelor of Medicine and Master of Surgery and later Doctor of Medicine. He is a fellow of the College of Physicians of Edinburgh and a fellow of the American College of Surgeons. He has been associated with a clinic in the chair of Obstetrics and Diseases of Women in Edinburgh, The Royal Infirmary and also worked in the hospitals of Berlin, Leipzig, Paris and Dublin. He was lecturer on diseases of women from 1897 to 1899 in Montreal and held a staff appointment in the Royal Victoria Hospital in that city. He holds at present and has held since 1899 the Chair of Obstetrics and Diseases of Women in Rush Medical College and holds staff appointments in the Presbyterian Hospital and other hospitals. As to his experience, the witness stated as an example, that the hospital report shows that in the year 1914, he had in the hospital 684 cases of diseases of women and 379 obstetrical cases. Under his charge in the Central Free Dispensary, 1,238 cases of diseases of women and obstetrics were treated. These do not include office patients.

The witness testified that he is a fellow of the American Medical Association, He was asked to name and describe the organs of the female pelvis. Mr. Hough stated:

"We will admit that the Doctor knows them."

The attention of the witness was called to the charts, A, B, C, D, E, described in the testimony of Dr. Leeming, and he identified them.

The witness was asked:

Q.—I will ask you this question then, Doctor: Is it necessary to make an examination of the female pelvis in order to determine the condition, the underlying cause of the condition, and the treatment which is necessary?

Mr. Hough:—That is objected to also?

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

THE COURT:—This of course is his opinion.

A.—It is necessary.

Mr. T. J. Scofield: Q.—Why is that true, Doctor? *A.*—Why is it true?

Q.—Yes; why is it necessary?

Mr. Hough:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—Because from symptoms one can rarely have any accurate idea of the pathological conditions in the body, in this part of the body. I am now referring my remarks to this department of disease. There are many symptoms which are common to different conditions and consequently it is necessary in analyzing a case, to make a careful physical examination.

Mr. T. J. Scofield:—Can you determine, or can the condition of the uterus, or the pelvic organs be determined merely by attention to the description of symptoms which a patient gives?

Mr. Hough objected to this question as not pertinent to the issue. The Court stated that "it may be, that, in the charge that the business was built up by deceit . . . the question would be proper." After argument the Court ruled that the witness might answer.

A.—I cannot.

Mr. T. J. Scofield: *Q.*—Doctor, have you had any personal experience with the use of cnicus benedictus? *A.*—No, sir.

Q.—Have you had any personal experience with the use of viburnum prunifolium? *A.*—I have.

Q.—Tell the jury what has been your experience with viburnum prunifolium, and what conclusion you have arrived at with reference to it. *A.*—One of the things that struck me very forcibly when I started my work in Edinburgh as a young practitioner, was the small number of drugs that—

Mr. Walker:—We object to it.

The Witness:—that were—

THE COURT:—I think the question does not call for any individual matter of your personal history, Doctor. It is just to give as concise an answer to the question as you can.

(The question was then read.)

THE COURT:—That is, have you used it, and to what extent and what is your opinion of its worth?

A.—When I started early in my work, I say, I used viburnum prunifolium. I used the fluidextract. It was then quite extensively used in America and in the British schools. I used it in hospital practice, I used it in dispensary practice. I used it for the purposes for which it was supposed to be beneficial, particularly cases of pelvic pain associated with the menstrual function in women. I also used it in cases of threatened abortion. After the year 1896 I ceased to use that fluidextract. I then used the solid extract. The reason why I ceased to use it was, working in the laboratory with a friend of mine who was very much interested in that drug—

Mr. Hough:—That is objected to. That does not make any difference.

THE COURT:—The reason is not important.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—The reason was that this friend of mine—

Mr. Hough:—That is objected to.

THE COURT:—Don't tell any conversation, Doctor.

To which ruling of the Court the defendants, etc., excepted.

A.—I gave it up because I believed that the benefit that I got from its use in pain in association with menstruation, was due to the alcohol in it. I had never had any reason whatever to believe that it was of any value in warding off a threatened abortion. When I worked with the solid extract which contained no alcohol, I could not get the same results that I had obtained before in connection with its use in the pains of menstruation and gradually I gave up the use of the drug altogether.

Mr. T. J. Scofield: *Q.*—What is your opinion then, Doctor, from your experience with viburnum prunifolium, both in the fluidextract and as a solid extractive—what is your opinion as to the value of viburnum prunifolium, as a drug in such cases? *A.*—In such cases—

Q.—Yes. *A.*—I have come to the conclusion that it is of no value.

Q.—Now, Doctor, I wish to present to you for your consideration, a hypothetical medicine or solution.

THE COURT:—I think I will excuse the jury for a few minutes before we get to the hypothetical question.

Mr. T. J. Scofield:—It is not too long, your Honor, it will only be a page or two.

(Recess of ten minutes.)

Mr. T. J. Scofield: *Q.*—Doctor, I wish to present to you for your consideration, a hypothetical solution. This solution contains two drugs derived from the vegetable kingdom.

I will ask you to assume that the virtues of these two ingredients, which I will later describe in more detail, are obtained and preserved and held in solution by 20 per cent. of alcohol and when this liquid medicine is taken internally, each dose contains 48 drops of pure alcohol, or the equivalent of 96 drops of whiskey.

One of these ingredients (viburnum prunifolium) is derived from the bark of a certain shrub. It contains a bitter principle freely soluble in alcohol and also, a trace of valerianic acid, together with a bitter brown resin, tannin, sugar, oxalates, citrates, malates.

Assume that in the solution I am describing, that each dose of this medicine contains approximately the extractives from three grains of this bark.

Assume further, that when this medicine is taken in the ordinary and usual medicinal dose of 30 to 60 grains, it exerts a sedative action upon the spinal centers and lessens reflex excitability and irritability; that it has a special sedative action upon the uterus; that it is an antispasmodic, somewhat diuretic and astringent and that its bitter principle is slightly tonic.

The other ingredient of this solution (cnicus benedictus) is made from a weed or thistle; that an infusion of this herb has some bitter tonic action upon the stomach, like calumba, also that it contains a volatile oil and an amorphous bitter principle, neutral in reaction, slightly soluble in cold water, more so in hot water, and freely soluble in alcohol.

Assume that this bitter principle in doses of eight grains is somewhat antiperiodic in action, and that when an infusion of the herb is taken hot and in large quantities, it is diuretic and diaphoretic in action, and also that it possesses some action as a hepatic stimulant.

Assume that when large doses of the active principle are taken internally, it produces nausea, vomiting and intestinal irritation.

Assume that this drug is recommended in doses of from 20 to 60 grains and that in the medicinal solution I am asking you to consider it is used in doses of approximately the extractives from 30 grains.

Now, Doctor, I want you to have in mind the two medicines which I have described. I want you to assume that they possess the properties which I have mentioned, regardless of your personal opinion, and that they are used in combination and in the doses which I have given you, namely, the extractives from approximately three grains of one, and 30 grains of the other, and that each dose contains 48 drops of pure alcohol.

If you have this solution in mind, I want to ask you if you have an opinion as to the physiological and therapeutic value, if any, of this medicinal solution? *A.*—Yes, sir; I have.

Q.—What is that opinion? Before answering that question, let me ask you whether or not you are acquainted with gonorrhea in woman, that is, whether or not you know what it is? *A.*—Yes, sir.

Q.—Will you tell the jury what sort of a disease it is, and what produces it? *A.*—Gonorrhea is one of the so-called venereal diseases. It is produced by a micro-organism, a germ which was discovered in 1879 by Neisser and is well recognized, can be isolated and cultivated. Its characteristics are thoroughly known. It is the implantation of this germ in the genital tract of the female which produces the reaction known clinically and to the lay mind as gonorrheal inflammation.

It affects different parts. The ordinary acute infection usually attacks the lower end of the urinary passage which leads from the bladder. Frequently various little glands at the entrance of the female passage or vagina, are attacked. Very usually, in those acute cases, the lining of the neck of the womb, and frequently the high parts of the womb, going through the womb, the fallopian tubes and maybe the pelvic peritoneum, that is to say, the lining of the pelvic cavity with the structures therein contained, including the ovaries; that is the acute condition.

There is also a chronic condition, another form of gonorrheal infection of the female, which does not start in that way. The lower parts, namely the orifice of the passage to the urethra, are not affected, but the organism passes right up into the womb itself and may tend to affect it, with the tubes, the ovaries and the lining membrane of the cavity of the pelvis.

The bladder may be involved in some cases; the rectum may be involved in some cases. The disease causes—the acute disease causes a profuse discharge locally, very profuse. The chronic disease also produces a discharge from the womb, not as much as the acute disease produces. Pain and various symptoms—pain, urinary distress, accompany the early stages. In the chronic diseases, the symptoms and signs are many. They are legion, according to the amount of tissue involved and the structures involved. Do you wish me to particularize, sir?

Q.—Doctor, will you tell us whether or not vaginitis is ever due to that disease? *A.*—Vaginitis, inflammation of the female vagina, is frequently caused by that disease.

Q.—Now, then, Doctor, what is the specific germ? The specific germ of gonorrhea is what? *A.*—The gonococcus.

Q.—Can it be isolated? *A.*—It can be isolated, yes, and recognized under the microscope and in cultures.

Q.—Now, having the hypothetical, medicinal solution in mind, have you an opinion whether such a medicine taken by the mouth for gonorrhea in woman, will act upon the cause of the disease, and is therefore not a mere palliative, but a scientific and specific remedy with a curative effect upon the seat of the trouble? Have you an opinion?

Mr. Hough:—That is objected to as not being justified.

THE COURT:—Is that quoted?

Mr. T. J. Scofield:—Absolutely from the book.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—I have a very decided opinion.

Mr. T. J. Scofield: *Q.*—What is that opinion, Doctor? *A.*—That no influence whatever could be exerted on the organism causing that disease.

Q.—Well, now, will you explain why, Doctor? *A.*—That organism is a very difficult one to destroy, even when many well known antiseptic solutions and germicidal solutions are employed. It requires a strong germicidal solution to kill that micro-organism. That organism may live in the tissues of the body for years in spite of all kinds of treatment.

Q.—Now, Doctor, have you an opinion as to whether or not this hypothetical solution, or medicine, will have a curative effect upon gonorrhea, a curative effect? *A.*—I said that it was my opinion that it would not cure gonorrhea.

Q.—What do you say, Doctor, in regard to the internal use of such a medicine, containing 48 drops of pure alcohol, when taken internally, three or four times a day by a patient, who is suffering from gonorrhea.

Mr. Hough:—That is objected to as incompetent, irrelevant and immaterial.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—I have found in my experience that the administration of alcohol in gonorrhea in any of its forms, is bad because the effect of the alcohol is to intensify the congestion of the organs which are affected, and make the conditions worse.

Mr. T. J. Scofield: *Q.*—Doctor, I suppose you are acquainted—I think you have already stated that you know the condition of uterine prolapse or falling of the womb? *A.*—Yes, sir.

Q.—Now, will you tell the jury what it is, and what causes it? *A.*—Yes, sir. Prolapsus as the term indicates, is a medical term, also well

understood by the laity, signifying the falling down of the womb. The womb is—the organ, the womb, is placed in the pelvis for a specific purpose, and it is held there by certain ligaments. In certain disturbed conditions, from various causes, the womb may get out of place and sink down. The womb alone may do that or it may be with neighboring structures. When that occurs, the ligaments are stretched and elongated; necessarily it must be so. The descent may go on until such a condition is reached as is shown in that "D" diagram.

Your Honor, I have a cast here which will help me explain this. May I put it in evidence? A cast of prolapsus.

The witness then introduced in evidence plaster casts of the normal female perineum and external genitalia and the same regions in a case of uterine prolapse. He described uterine prolapse and its complications. Continuing:

Mr. T. J. Scofield:—Now, Doctor, will you state what are the underlying causes which permit the womb to come down in this way. *A.*—We may consider the causes—

Mr. Hough:—That is objected to as immaterial.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness: (Continuing)—under several categories. Defective support of the so-called floor of the pelvis is important. That defective support is very commonly caused by the results of childbirth. The passage of the child may tear the woman or stretch the parts and they may not come back again, they may stay stretched or torn and there is defective support.

Then again, a woman may be placed in such a position in life as that she has to get up too soon after childbirth; go to work too soon, lift or strain, scrub and do all those things, which, acting on the softened condition which exists as a result of the pregnancy and labor, tends to stretch the uterus or the parts which normally should be taut and which should at that period have rest.

It may be that tight lacing (another circumstance of life), tight lacing too soon after the labor tends to increase the so-called intra-abdominal pressure, and drive the uterus or other parts down.

Chronic bronchitis, a woman so unfortunate as to be troubled with coughing for a long time, might have her womb driven down in that way.

The size of the womb is important. The womb is enlarged for some time after a labor, and the weight of the womb is a factor to be considered. Again, there are other causes; the womb may be enlarged from inflammation, from tumors and so on, exercising an influence of driving it down.

Q.—Now, Doctor, have you an opinion, as to whether or not such a medicine, as I have described, taken by the mouth, will (quoting from Home Treatment) "cure uterine prolapsus"? *A.*—I have an opinion.

Q.—What is that opinion? *A.*—That it cannot cure uterine prolapsus.

Q.—Have you an opinion on this question: If this medicine is, (quoting from Home Treatment), "taken three times a day until about three days before the menstrual period, when four doses should be taken until stoppage of the flow; and that in addition, appropriate laxatives are used, together with antiseptic douches, sitz-baths, etc.," have you an opinion as to whether or not this medicine will cure uterine prolapse under those circumstances? *A.*—I have an opinion.

Q.—What is that opinion? *A.*—It will not cure uterine prolapse.

Q.—Have you an opinion as to whether or not this hypothetical medicine (quoting from Home Treatment) "will cure falling of the womb in all its forms." Have you an opinion? *A.*—I have.

Q.—What is the opinion, Doctor? *A.*—It will not.

Q.—Doctor, I call your attention to the following quoted from Home Treatment for Women: "Whites and falling of the womb are frequently combined diseases. Both are cured by the use of this medicine, and suitable laxative treatment." Have you an opinion as to the accuracy and truthfulness of this statement? *A.*—I have.

Q.—What is that opinion? *A.*—I regard it as inaccurate, untrue.

Q.—Why do you say that this medicine will not do these things, and why do you give that opinion? Why do you hold that opinion?

THE COURT:—When you say "this medicine" you mean your hypothetical medicine?

Mr. T. J. Scofield:—The hypothetical medicine, yes.

A.—You mean in prolapsus?

Q.—Yes, and in what I have stated here. *A.*—Whites?

Q.—Yes, upon which you have expressed an opinion. *A.*—Prolapsus uteri is a matter of damage to a machine. The machinery of the pelvis is a very complicated one, and the structures that are involved, the ligaments that are involved, especially in the progress of these conditions, cannot be changed. If tissues are torn apart, they cannot be brought together by this hypothetical medicine.

Q.—Now, Doctor, are you familiar with the different forms of flexions and versions of the uterus? *A.*—Yes, sir.

Q.—Now, without going into detail with reference to each particular form, will you give the jury a general description, using, if you wish one of these different forms of displacement as illustrated here in these charts, and explain to the jury how those conditions are brought about, what symptoms are produced, and what means you use to cure such displacements, if any.

The witness described various uterine displacements as illustrated on the charts previously mentioned. He mentioned the common causes of displacements and their usual effects on the body and the symptoms which they produce.

The court then adjourned until 2:00 p. m. the same day.

April 12, 1916, Afternoon

The court met pursuant to adjournment. Dr. John Clarence Webster resumed the stand.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD (*Continued*)

Q.—Doctor, in the last question which I asked you, among other things, I asked you what means you used to cure these displacements. That part of it you have not answered. *A.*—Various measures are adopted for treating these displacements; finding out, as one must, the causes that have been most important, one gets an indication in that direction. For instance, if a woman is overworking, overlifting, one must take into consideration that factor and give advice accordingly. There has got to be some change in her occupation, which will lessen the increased pressure that is caused by such measures. If she is run down, if she has lost too much blood from the congested, displaced uterus, one has to try to improve the condition and check the loss of blood, and make up for the loss of blood; and a very common procedure in such cases is to use hot water douches, certain local forms of medication, by tampons of glycerin; or it may be medicated glycerin; and then, if the blood is below par, one must insist on good food, sleeping—having fresh air at night, day and night, especially night, not sleeping in closed rooms, as is the case with so many people; using some iron tonic to improve the condition of the blood; and so on.

Then, as regards other measures, in some cases it is possible to gradually elevate the womb with the hands by manipulations, get it into its place and support it, use some form of support—a pessary, so-called, that is a sort of prop that is put in the vagina to hold up the womb.

In some cases it is satisfactory, while the prop is kept there; in many cases, on account of the inflammation in the pelvis, in the ovaries and tubes in particular, and the ligaments, the patient cannot wear a prop, because it hurts her; and in those cases, and there is quite a variety of them, it is necessary to prolong the period considerably in which the treatment is carried out, so as to try and reduce the inflammation, so that the prop can be introduced—can be worn.

Then there are cases in which no prop can be worn, because of the opening up of the vagina, which has been torn too much, stretched too much, and no instrument, no prop will stay in.

In those cases, it is necessary to have recourse to surgical procedures; to close the parts that have been separated, separated by tearing or stretching, to deal with the ligaments that have been stretched, so that they may be made stronger and shorter, and the uterus thereby raised and kept in its position.

There are other things that may be necessary at the same time, but that is the general routine of treatment in a case of chronic retroflexion, to which I have referred.

Q.—Now, Doctor, based upon your experience in this line of work, is the same kind of treatment always indicated for each displacement and for every form of displacement, and in every case?

Mr. Hough:—Objected to as incompetent, irrelevant and immaterial.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

The Witness:—Why, there are great varieties—great varieties in the conditions which are presented by these displacements, and naturally the treatment—the measures adopted must vary from case to case.

Mr. T. J. Scofield:—Now, Doctor, having in mind the hypothetical question which I asked you—or the hypothetical medicine—Doctor, let me call your attention to the following quotation under the head of "Displacement of the Womb": "When a woman has displacement of the womb, forwards, backwards, up or down, the patient is in a very serious condition. This medicine acts on the womb itself and helps to pull up or otherwise replace the displaced womb." What is your opinion as to the accuracy of this statement, and as to its truthfulness?

Argument was made on the reading of excerpts from the Ladies' Birthday Almanac and Home Treatment Book in questions, Mr. Hough contending that the whole section be read each time. The Court suggested that after Mr. Scofield read the plaintiffs' attorney might suggest which omitted portions, if any, be included.

The Witness:—As regards the first part of that, I would say that many of these cases are serious. As regards the second part, I would say that it was absolutely inaccurate and absolutely untruthful.

STERILITY

Mr. T. J. Scofield: Q.—Now, Doctor, what is sterility, and what causes it, briefly? *A.*—Sterility is the condition known—it is the condition in which a woman, married woman, living a natural life with her husband, does not become pregnant.

THE COURT:—It is a relative term, then. Is there any such thing as absolute sterility, so that there is nothing—congenital sterility, something that cannot be relieved under any circumstances?

The Witness:—Yes, sir.

THE COURT:—The average layman understands sterility as sterility—as a natural state. Now, as it has been used here, some of the witnesses apparently have used it in a different sense—as a temporary condition that may be subject to relief.

The Witness:—There are many varieties of sterility. Some are temporary; some are absolute. I will give you one instance of the latter. I had a patient once who was married, and who had no ovaries, no tube and no uterus. She had a vagina, and was capable of sexual intercourse, but she had no children; and she came to me, because her

husband was driving her, and angry at her because she had no children. That is a case of absolute sterility. There are—

Mr. T. J. Scofield: Q.—Now, the other kind, Doctor; what is the other class of sterility? A.—There are other conditions; for instance, a commonly recognized form of sterility is too small an entrance to the womb. Another one is closure of the tubes which lead from the womb toward the ovaries, from various causes. It may be a little growth pressing up it, it may be a kink or twist; it may be inflammation in the wall. In some cases the eggs cannot get down the tubes because at the outer end there is a film of adhesions from some inflammatory trouble, which covers the end of it. In other cases, the ovaries are the cause of the sterility. In some cases the ovary gets imbedded, covered up in a covering or capsule of adhesions, inflammatory tissue, and the eggs cannot get out of them down into the uterus.

There are quite a number of cases in which sterility is due to a catarrhal condition of the womb or the tubes, or both; a condition known as whites in women, whereby the stuff pours forth, and the semen cannot get up.

In some cases the chemical character of that discharge will destroy the spermatozoa in a short time, and fertilization will not occur. There are other causes.

Q.—Doctor, have you an opinion as to whether the hypothetical medicine I have called your attention to, in addition to the use of the knee-chest position will, in time, in most cases, result in a cure of sterility? A.—I have an opinion.

Q.—What is it? A.—That it will not.

INVERSION OF THE WOMB

Q.—Have you an opinion as to the effect of the hypothetical medicine upon the condition known as inversion of the womb? A.—I have.

Q.—What is that opinion? A.—Understanding by inversion of the womb, that condition in which it is turned inside-out, or outside-in, I have the opinion that such a medicine would be—is absolutely of no value in restoring it to its position.

Q.—What is inflammation, Doctor? A.—What is what?

Q.—Inflammation? A.—An inflammation is—

Q.—With reference—I beg your pardon—with reference to the genital organs of a woman—an inflammation with reference to the genital organs of a woman? A.—An inflammation is a process of irritation in the tissues, whereby there is more blood carried to the parts; it may be the blood is poured forth, or the clear part of the blood is poured forth, and cells are stimulated to production, they may multiply, and you may get a swelling, the inflammatory swelling.

Q.—Is it progressive upward, so that it may get into the fallopian tubes? A.—Inflammation, starting in the lower part of the genital tract, as the vagina or the neck of the womb, tends usually to extend upward through the tubes and into the peritoneal cavity.

PYOSALPINX

Q.—Now, is pyosalpinx one of the forms of inflammation? A.—Pyosalpinx is one of the most characteristic diseases that we have, resulting from inflammatory changes due to infection. It produces changes in the character of the tube, which is a little structure not as big as the finger—the little finger—perhaps the size of a slate pencil, or a little larger—four or five inches long, running out from the top of the womb. That—when that gets infected and becomes altered, producing the condition known as pyosalpinx, it is like an abscess, a pyosalpinx is nothing more or less than an abscess on the tube, and it may be small, or it may be big.

Q.—Now, Doctor, can you illustrate that in any way? A.—Yes. I can illustrate it by a specimen that I have brought down here from my own practice. I have a specimen here in which there are two pyosalpinx conditions. They are large, like a big sausage. They look like two large elongated pears. (Exhibits specimen.) Those were removed by me from a patient, and were full of pus.

Q.—How much larger are they than the normal natural tubes, Doctor? Just generally speaking? A.—What?

Q.—Generally speaking. A.—Yes, I will just tell you—one of these is about nine inches long; and its diameter—its diameter in the middle is about two inches—two by nine; the fallopian tube might very well be represented by a structure like that length of lead pencil. (Indicating lead pencil.)

Q.—Now, can you tell, Doctor, what the cause of that condition was? A.—Gonorrhea.

Q.—What kind of gonorrhea, gonorrheal infection? A.—Gonorrheal infection.

Q.—Now, Doctor, assuming that form of inflammation exists, namely, such as you have just mentioned and discussed, have you an opinion as to whether or not the hypothetical medicine which I have described, taken three or four times a day, in addition to proper regard to diet, baths, injections, etc., will, in most cases, restore the patient to health? A.—Cases of pyosalpinx?

Q.—Yes, sir. A.—Absolutely not.

Q.—That is you have an opinion it will not— A.—I have an opinion, yes.

Q.—And that opinion is what? A.—That it would not.

Q.—Now, what have you to say about an ovarian abscess? Would the same thing apply there? A.—An ovarian abscess is exactly comparable to the pyosalpinx. It is an abscess of the ovary.

Q.—Now, then, Doctor, explain what is meant by the terms menorrhagia and metrorrhagia? A.—Menorrhagia is a scientific term used to signify increased flow of blood at the menstrual periods. Metrorrhagia is another term used to imply a flow of blood from a woman between the menstrual periods.

Q.—What is the cause of these conditions, Doctor? A.—The causes of menorrhagia and metrorrhagia—because they may be put together—are many, various. Take, for instance, one class of cases—to quote specifically, fevers. A person, for instance, might have scarlet fever, or typhoid fever. It is quite common to have at first, in those conditions—in the acute stages, some flow of blood—a series of conditions of that character. Then a woman—a person with scurvy or with the condition known as hemophilia, with a tendency to bleed—in those cases it will flow, too.

Another important cause in woman is chronic alcoholism, producing flows of increased menstruation, and flows of blood between the menstrual periods. These great conditions of flexions, displacements of the uterus, tumors of the uterus, such as fibroids, or polypi of various kinds—chronic inflammations—and a very important cause, of course, is malignancy, which occurs in different forms, cancer being one of the most common. Those are some of the most important causes.

Q.—Now, Doctor, have you an opinion as to whether the hypothetical medicine which I have described, is a proper, scientific treatment in all such cases known as menorrhagia? A.—I have an opinion.

Q.—What is your opinion? A.—That it is not.

Q.—Doctor, in a case where a woman has whites or leukorrhea, and notices that the discharge is slightly tinged with blood, what would be the danger of the use, if any, of such a hypothetical medicine; and, if it would be dangerous, why would it be dangerous; and can you illustrate it? A.—Might I—yes. Might I answer that by a specific case which I have had in my practice?

Q.—As a matter of illustration, I should say—well, that is for the court. A.—I have this case before me; a woman 64 years, I think, of age, with a discharge of that character, blood appearing in it in small quantities, varying from time to time; that woman was of a very shy disposition; she did not care to consult a doctor—or did not, though she had doctors in her family; she treated herself by various remedies which she—

Mr. Hough:—This is objected to, if the Court please.

THE COURT:—Yes, Doctor. Just confine yourself to the actual things that you saw. Don't give the subjective symptoms.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—Yes. Well, I saw that case. I saw that case a year after she began to notice these things, and I found that she had cancer of the neck of the womb, which involved the bladder and the rectum.

Mr. T. J. Scofield:—Is that condition progressive, Doctor, when it first manifests itself, that is, the indication of the whites and the bloody discharge—is the cancerous part of it progressive, so that it becomes worse and worse, or not? A.—Yes, sir; it always progresses.

Q.—Have you an opinion whether suitable treatment in the earlier stages of that disease, in that case, would have been beneficial?

Mr. Hough:—One minute; that is objected to.

THE COURT:—A good deal depends, Mr. Scofield, on what is meant by suitable treatment. The thing we are concerned with now—

Mr. T. J. Scofield:—Omit the words "suitable treatment."

THE COURT:—is whether your hypothetical medicine is a proper medicine under the circumstances; whether, in the opinion of Dr. Webster, it has or has not value.

Mr. T. J. Scofield: Q.—Well, what would you say in answer to the question as suggested by His Honor? A.—I should say it was of no value.

THE COURT:—Doctor, does the appearance of the blood under those circumstances indicate a single or many causes—many different sources of the trouble?

The Witness:—You mean blood occurring with leukorrhea?

THE COURT:—Yes.

The Witness:—Why, it may be, of course, due to various causes; not necessarily one cause.

Mr. T. J. Scofield: Q.—How can you ascertain what it is due to, if you can ascertain? A.—By physical examination, hands and eyes.

Q.—Can it be determined in any other way? A.—I don't know of any other way.

Q.—Now, Doctor, have you an opinion as to whether the hypothetical medicine which I have spoken of, or described to you, will cure dysmenorrhea and amenorrhea? A.—By dysmenorrhea—dysmenorrhea is not the disease—it is a name to signify pain that is caused by many diseased conditions, Mr. Scofield.

Q.—Well, will the hypothetical medicine mentioned then cure the cause of dysmenorrhea? A.—Cure the cause of dysmenorrhea?

Q.—Well, without any further information than I have given you, will that hypothetical medicine—will you say whether or not it will cure the causes of dysmenorrhea? A.—I should say not.

Q.—How about amenorrhea, absence of— A.—Amenorrhea is another term signifying a stoppage of menstruation, or a diminution of the normal menstrual flow; and it is due to a variety of conditions.

Q.—That comes you say from many causes? A.—Many causes.

Q.—Now, have you an opinion as to whether or not, this hypothetical medicine that I have described will cure the different causes that produce amenorrhea? A.—I have an opinion.

Q.—What is that opinion, Doctor? A.—That it would not cure the causes, which I know.

Q.—Now, what do you mean by puberty? A.—Puberty is the period of a young girl's life, whereby she is going through the transformation from girlhood to womanhood. The great characteristic is an increase in the size of the womb, the increase in size and activity of the ovaries, with what are called the secondary sexual characteristics, namely, the growth of the bust, the hairs on the body, the increase in the width of the pelvis and so on.

Q.—Now, then, Doctor, is that a natural function, or not— *A.*—Since all—

Q.—Or physiological? *A.*—Since all women go through it, I take it is a natural process.

Q.—Have you an opinion, Doctor, whether or not all girls, or every girl should take such a medicine as I have described to you hypothetically, at the time of puberty? *A.*—I have an opinion.

Q.—What is that opinion? *A.*—That all girls at the time of puberty should not take that or any other medicine.

Q.—Have you an opinion, Doctor, as to whether a medicine, such as I have described, which contains 48 drops of pure alcohol to each dose should be taken by every girl at the time of puberty, and that such medicine can never do her anything but good? *A.*—I have an opinion.

Q.—What is it, Doctor? *A.*—That it would be wrong for a girl at the time of puberty, because she is at the time of puberty, to take such a mixture.

Q.—Is there any special reason, Doctor, why you think it is wrong for them to take that sort of medicine at the time of puberty? *A.*—It is wrong for the—it is wrong, because the organs are in a very delicate condition, and no stimulant or irritant of the organs should be given, quite apart from the danger that there might be of the development of a liking for alcohol.

PREGNANCY

Q.—Now, Doctor, what is your opinion as to whether a pregnant woman should use such a hypothetical medicine as I have described, during the whole term of pregnancy, and whether it is a fact that such medicine can never do anything but good; have you an opinion upon that? *A.*—I have.

Q.—Well, state your opinion? *A.*—A pregnant woman—I take it you mean a normal pregnant woman?

Q.—Yes, sir. *A.*—A pregnant woman who is normal needs medicine no more than a woman who is not pregnant and is normal; and I object strongly in my practice—I object strongly—I have lived long enough in Scotland to see the effects of alcohol administered in pregnancy.

Q.—Any special reason, Doctor—complications or what might be developed under its use? *A.*—Alcohol tends to congest the pelvic organs. It may set up inflammations or aggravate preexisting inflammations in pregnancy, as in the nonpregnant condition. It may be a factor in the production of abortion. It may affect—have an effect, especially—I have always kept in mind in my practice the effect of alcohol on the kidneys, the possible effect on the kidneys, because the kidneys are the organs that we watch—or should watch, with the greatest care in pregnancy, lest anything that interferes with their elimination—with their elimination or activity, might be dangerous to the mother, and the influence of alcohol on the kidneys is well known—it is a chronic irritant of the kidneys.

Q.—Doctor, have you an opinion as to whether such a hypothetical medicine as I have described, if taken during pregnancy, will make childbirth easy? *A.*—I don't quite catch your question, sir?

Q.—I say, have you an opinion as to whether or not such a hypothetical medicine as I have described to you, if taken through pregnancy, or during pregnancy, will make childbirth easy? *A.*—I can see no connection. I cannot see how it could possibly affect childbirth, in any way.

Q.—Have you any opinion, Doctor, as to whether the hypothetical medicine, such as I have mentioned, would cure a condition of—a condition described as hanging breasts? *A.*—I have an opinion.

Q.—What is your opinion? *A.*—It cculd not possibly do so.

Q.—Have you an opinion as to whether or not such a hypothetical medicine as I have mentioned to you will cure undeveloped ovaries, or will develop them? *A.*—I have a very decided opinion.

Q.—What is that opinion? *A.*—That it would be absolutely impossible.

Q.—Doctor, are you acquainted with a preparation known as McElree's Wine of Cardui made by the Chattanooga Medicine Company? *A.*—I am.

Q.—Have you ever used it? *A.*—I have.

Q.—What experience have you had with this preparation? *A.*—I will have to refer to my notes, if I may, Your Honor—

Q.—To refresh your recollection? *A.*—To refresh my recollection as to it, to be exact. I have now in the Presbyterian Hospital six cases on whom I have used Wine of Cardui. I will describe them in detail.

The first case is that of a woman, a married woman, aged 37, who came to me with a bad tear of her perineum, with a prolapse of the uterus, with chronic inflammation of her tubes, and ovaries. I have been very much interested in the statements that have been made about this drug—

Mr. Walker:—I move that be stricken out—"I have been very much interested"—

THE COURT:—Strike it out.

Mr. Scofield:—If the Court please, this is simply a beginning—

THE COURT:—I know, but that may go out.

To which ruling of the Court the defendants, etc., excepted.

The Witness:—And I wished to try the effects in these conditions—that is all I was going to say.

And I have previously carried out with the chief drugs that we use in the female—treatment of female diseases—I have tried similar experiments and doses given—and used those drugs in certain ways, and I have repeated with Wine of Cardui what I have done with the other drugs.

This patient was in such condition as that she required surgical treatment. I repaired the tear of her perineum. I then opened the abdomen, in order to deal with the prolapsus and the diseased tubes and ovaries.

I decided to see if it would be possible for me to act on these stretched ligaments with Wine of Cardui. As soon as I saw the uterus, I injected into it six drams—that is about six teaspoonfuls—I injected into the uterine broad ligament, into the uterus itself, into the bases of the ligaments, because I wanted to test the effect on the uterus and on these ligaments.

There was no effect whatever; no change in the womb, no change in the ligaments.

Then I took a drug which is of great influence on the womb, and has a very marked tonic effect, namely, pituitrin; and I injected an ampul, and then a second ampul—that is a small flask that is put up for such purposes—about 15 drops or so—into the womb, and into the ligaments. At once, there was a marked, powerful contraction of the womb, it widening and hardening; but the ligaments remained as they were; the round ligaments, the broad ligaments and the ligaments behind the womb low down, called the utero-sacro ligaments.

Another patient had a retroversion of the uterus. She has pustules like this (indicating specimen), though not so large. She had a torn perineum.

I again tried with that patient the effect of Wine of Cardui, injecting it pretty much as I have described in the first case, and obtained no action whatever, either in the womb, or on those ligaments.

I then—I should say that in this case the womb was very soft and flabby. I then used a little of this pituitrin I have described, and injected it, and at once there was a spasm—contraction of the uterus. Then I thought it would be well to test Wine of Cardui as regards its power to undo spasm—undo spasm in this organ, and I injected it, but it had no effect in that direction.

The next case was that of a woman 22 years of age, where I tried the effect by introducing this Wine of Cardui into—under the skin. Just as soon as I had the abdomen open and saw the womb, I injected it under the skin, and there was no effect during ten minutes, fifteen minutes—as there would have been—as there is with all the other drugs that I have used for the purpose of obtaining some tonic action of the muscle.

I then tried again, injecting it directly into the uterus—the round ligaments, the broad ligaments—and no change whatever. Again, another test—I injected the pituitrin, and then a few moments—within a minute, usually always it began to harden and contract.

Another case: A young woman of 25, suffering from a retroflexion, with great—many adhesions, inflammation of the tubes and ovaries—a similar experiment.

One more case—I think that makes six—of a woman who came into the hospital—

Mr. Hough:—One minute.

Mr. Walker:—That is only five.

Mr. Hough:—What was the fourth case?

The Witness:—Hold on, now, Mr. Hough. A young woman of 25—

Mr. Hough:—A retroflexion—

The Witness:—Retroflexion, adhesions, inflammation of the tubes and ovaries, the last case which I say makes my sixth case—

Mr. Hough:—The fifth, first?

Mr. Walker:—That is only five you have given us.

The Witness:—Have I? One, two, three—oh, yes, that is right. I beg your pardon; I am wrong. It is five.

The last case that I will refer to is one of a woman four months pregnant, bleeding—that came in there. I placed her on Wine of Cardui, a tablespoonful dose, by the mouth, three times a day—and kept her quiet, in bed. In two days' time she was still bleeding, and I made a careful examination and found the condition was such as that the uterus had to be emptied. The condition was one in which the after-birth was low down, over the neck of the womb, that is—well, that concludes my experience.

I have had in mind in these cases the effect of Wine of Cardui on the ligaments of the womb, and on the womb itself, and the results, if it is used in that way, as compared with the use of ergot, and pituitrin, which are the two most powerful medicines that I know about in the treatment of these diseases—there was absolutely no effect either on the ligaments or on the womb.

Mr. T. J. Scofield: Q.—Doctor, have you—

Mr. Hough:—Before you go on, I don't have but five cases.

The Witness:—That is five, that is correct.

Mr. Hough:—Five is correct, isn't it?

The Witness:—Five is correct, yes, Mr. Hough.

Mr. T. J. Scofield: Q.—Doctor, based upon your experience with Wine of Cardui, have you an opinion as to whether or not Wine of Cardui is a uterine tonic? *A.*—I have.

Q.—What is that opinion? *A.*—That it is not a uterine tonic.

Q.—Based upon your experience in the use of Wine of Cardui, have you an opinion as to whether or not Wine of Cardui is a uterine sedative? *A.*—I have an opinion

Q.—What is that opinion? *A.*—That it is not a uterine sedative.

Q.—Doctor, as the result of the work which you have done with Wine of Cardui, what is your conclusion—based upon your experience with it, what is your conclusion as to Wine of Cardui as a medicine?

Mr. Hough:—I object to the question in that form. That is too general.

THE COURT:—You may ask him what his opinion is. It is the same thing.

Mr. Hough:—Well, but it does not ask a particular thing about Wine of Cardui—

THE COURT:—Ask him whether it is of value—

Mr. T. J. Scofield:—I mean in female diseases and for pelvic troubles.

THE COURT:—Ask him whether it is of value, or of no value.

Mr. T. J. Scofield: *Q.*—Well, what is your opinion, based upon your experience with Wine of Cardui, whether in uterine troubles it is of value or no value? *A.*—My opinion?

Q.—Yes? *A.*—It is my opinion that it is of no value.

Q.—Now, Doctor, I want to ask you a hypothetical question. I want you to assume the experience you have had with Wine of Cardui and the conclusions which you have had as the result of your experience with it—which you have had as the result of your experience with it, and about which you have testified in this case. I want you to assume further that Wine of Cardui is made with a 20 per cent. alcoholic menstruum, containing in each dose of a tablespoonful the extractives from approximately thirty grains of carduus benedictus, and approximately three grains of viburnum prunifolium; based upon this hypothesis, have you an opinion as to the effect of this preparation upon the conditions which you have described as uterine prolapse. Also—well, answer that one first. *A.*—I have an opinion.

Q.—What is it, Doctor? *A.*—That it would have no effect upon uterine prolapse.

Q.—Why not?

Mr. Walker:—We have been all over that I thought.

Mr. T. J. Scofield:—I think not.

THE COURT:—It seems to me the witness went over that.

Mr. T. J. Scofield:—We are talking about Wine of Cardui now, if the Court please.

Mr. Walker:—Oh, the other was the hypothetical medicine?

THE COURT:—Yes.

Mr. Walker:—Well, if that makes any difference—

Mr. Scofield:—I don't know that it does. We think it is the same thing—

The Witness:—Because it cannot act on the ligaments that are stretched or torn, or on the uterus.

THE COURT:—Can't you assume a general question and ask the witness whether his experience with Wine of Cardui is different from—if it would furnish the basis for any different opinion than he had of the hypothetical medicine? And if it does, in what respect?

Mr. T. J. Scofield: *Q.*—Doctor, based upon your experience with Wine of Cardui, have you an opinion whether or not—if the various questions which I have asked you concerning the synthetic preparation, or the hypothetical preparation, would be answered in the same way, if I should ask you these questions separately? *A.*—In the same way.

Q.—That is in reference to Wine of Cardui—in the same way? *A.*—Yes, in the same way.

Q.—Now, Doctor, I want to read a quotation from the Ladies' Birthday Almanac for 1907, page 9, under the heading "Untold Misery," as follows: "Women; why let yourselves be dragged down, made miserable, sear, yellow, withered, wrinkled and gray haired before your time, by the pain you think you have to endure? Untold misery is suffered every month by thousands of women for want of the right medicine to right their troubles—Wine of Cardui. Take it and it will help you, as it has helped a million others in the past fifty years. No matter what the pains, headache, backache, waist pain, bearing down cramps, colic, etc., caused by weakness or irregularity of your womanly functions, Wine of Cardui has been proved a successful treatment for their relief or cure." Based upon your experience with Wine of Cardui, have you an opinion as to whether this statement is true? *A.*—I have.

Q.—What is that opinion? *A.*—I don't believe it is true.

Q.—Assuming that the hypothetical solution to which I have already called your attention, and which I have described, is identical with Wine of Cardui, have you then any different opinion as to this statement which I have just read to you? *A.*—How is that, please?

Q.—Assuming—well, I don't know that I care about that—well, I will let that go.

Mr. Walker:—He has withdrawn it.

Mr. T. J. Scofield:—Doctor, I want to read to you a quotation from the Ladies' Birthday Almanac for 1907, page 31, under the head, "Displacement": "When the chief womanly organ, the uterus, or womb, is displaced from its natural position, the patient is in a very serious condition. Displacement of the womb forward, backward, up or down, causes severe pains, headache, backache, irregular, scanty or profuse periods, nervous troubles, sterility and many other disorders generally called female troubles. Wine of Cardui acts on the womb itself and on all the surrounding muscles and other parts, and by toning them up to a proper healthy condition helps to pull up or otherwise replace the displaced womb, thus curing all the troubles which such displacement causes. The great value of Cardui to all sick women lies in the fact that it is a woman's medicine, for woman's pains, and for all woman's peculiar ailments. For over fifty years it has been in successful use, and in that length of time has benefited or cured over a million suffering women. It is pleasant, non-intoxicating, reliable."

Based upon your experience with Wine of Cardui, and also assuming that it contains the two medicines in the quantities I described to you in a former hypothetical question, in a 20 per cent. alcohol solution, have you an opinion as to the truthfulness of the various statements made in this quotation? With reference to the curative effect of this solution upon the troubles mentioned therein? *A.*—I have.

Q.—What is that opinion? *A.*—That it has not the curative effects claimed.

Mr. T. J. Scofield:—That is all.

(To be continued)

Correspondence

An Efficient Thermometer

To the Editor:—The papers are reporting that an effort is being made at Washington to change the Fahrenheit thermometer for the Centigrade. Doing away with the Fahrenheit scale would be a step in the right direction. However, the Centigrade thermometer was made in and for the laboratory, and would never be practical for everyday human needs.

The only possible way to make a thermometer is to take two points in temperature and divide the difference into equal parts. The Centigrade scale is correct in starting at the freezing point as zero both for property and for human reasons; but in a vain and fruitless attempt at being scientific, the next point in this scale is placed at boiling water for laboratory reasons only, and is useless for every human reason. A thermometer that would render us the most efficient service must start at zero as the freezing point and take the blood heat of man at 100, these being the most vital points in temperature pertaining to our comfort and safety.

I would call this thermometer the U. S. thermometer, and its advantages are almost self-evident. For instance: One need not have a scientific education to realize that on a hot day with the thermometer at 90, there would be just 10 degrees' leeway between the blood and air, and at 95 just half that amount. Every one would learn this in spite of himself, and would glance at the thermometer, not merely from curiosity, but with intelligence that would serve a purpose.

In this thermometer how much simpler the mental calculation when the doctor says our fever is 103½ to realize that we are 3½ degrees above normal, than in the complicated process of subtracting 98⅗ (Fahrenheit normal) from 102⅘.

Ask any doctor you happen to know what the registration of 3½ degrees of fever would be in Centigrade. In this new U. S. scale the length of the degree is most convenient, fractions being rarely needed, and practically all weather reports would be in two figures: —100 to +100 or less. Also the ratio of Fahrenheit to U. S. is as 66⅔:100, or 2:3, an easy ratio for translation if need be.

Whenever we desire to read a thermometer, our prime object always is to see the relation between the present air temperature and the freezing on a cold day, or blood heat on a hot day, these points being the most vital as regards our relation to our surroundings. This new U. S. thermometer would show directly and accurately this relation, and would be the only thermometer in the world to do this.

B. P. CHURCHILL, M.D., Milwaukee, Wis.

Electrotherapy in Lumbago

To the Editor:—Referring to Dr. William Martin's letter under this title (THE JOURNAL, April 1, 1916, p. 1051), because other forms of electricity may be better I do not like to see such an unusually applicable and good remedy as the faradic current in lumbago cast aside. Properly applied in non-traumatic lumbago it is usually followed by immediate and great relief from symptoms, and I even suspect it has some curative effect. In any event, it helps until strapping and internal remedies get in their good work. Faradic electricity is especially useful in differentiating acute rheumatic lumbago from injury. JOHN WOODMAN, M.D., New York.

History of Malaria.—Though malaria was not given its present name until 1753, the disease has been known and described in various writings for thousands of years. More than a thousand years before Christ both the tertian and quartan types of the disease were alluded to in the Orphic poems. According to Deaderick, the Iliad of Homer and the Wasps of Aristophanes contain allusions to what we now call malaria, and according to Goroff, the word AAT, found among the inscriptions of the temple Denderah, referred doubtless to malaria which recurred every year at the same season.—Bass.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

AMOUNT OF ARSENIC IN SODIUM CACODYLATE, IRON CACODYLATE AND POTASSIUM ARSENITE

To the Editor:—I wish to find the relationship by weight of arsenic between cacodylate of iron and arsenite of potassium as found in Fowler's solution.

What is the percentage by weight of arsenic in cacodylate of soda? Martinet gives it as 54 per cent. By taking the atomic weights I get the percentage under 50. Can one elicit from the atomic weights what the percentage of weight of any one ingredient in the molecule is?

What is the percentage by weight of arsenic in cacodylate of iron?

What is the percentage by weight of arsenic in arsenite of potassium as encountered in Fowler's solution?

Does 1 minim of Fowler's solution correspond to 1/100 grain of arsenite of potassium as is generally accepted?

D. W. MONTGOMERY, M.D., San Francisco.

ANSWER.—Theoretically the amount of an element contained in a chemical compound may be calculated from its chemical formula. Thus, using the atomic weights now in general use (adopted by the International Committee on Atomic Weights, 1914, O=16) the chemical formula H_2O indicates that 100 gm. of water (H_2O) contains 11.19 gm. hydrogen and 88.81 gm. oxygen. The difficulty in calculations of this sort is that substances as found in Nature are rarely true to chemical formula for the reason that they contain impurities.

Theoretically sodium cacodylate as used in medicine corresponds in composition essentially to the formula $(CH_3)_2AsO.ONa+3H_2O$. Therefore, it should contain 35.02 per cent. of arsenic (As). Practically the amount is somewhat variable because the salt may contain impurities and also because its water content is somewhat variable.

Theoretically the formula of iron cacodylate is $Fe((CH_3)_2AsO_2)_3$. Therefore, it should contain 48.17 per cent. of arsenic (As). How closely the iron cacodylate found on the market corresponds to the theoretical formula we do not know. Apparently, no reports giving the composition of the commercial product have been published.

Solution of potassium arsenite, U. S. P., does not contain 1 per cent. of potassium arsenite, but instead an amount of potassium arsenite which is equivalent to 1 gm. arsenous oxid (As_2O_3), 10 gm. of arsenous oxid being used for 1,000 c.c. of the finished solution. On the basis of 1 gm. arsenous oxid in 100 c.c., solution of potassium arsenite contains in 100 c.c. 0.757 gm. arsenic (As), and 1 minim contains 1/140 grain of arsenic (As).

SALARIES AND RANK OF ARMY OFFICERS, SURGEONS, DENTISTS AND VETERINARY SURGEONS

To the Editor:—What is the salary of a lieutenant, a surgeon, a dentist and a veterinary in the U. S. Army? What rank do the last three hold when duly appointed to the army?

C. H. HILGER, M.D., West Bend, Iowa.

ANSWER.—1. The salary of a first lieutenant, U. S. Army, is $2,000 a year; of a second lieutenant, $1,700. 2. A surgeon may hold any rank from first lieutenant to brigadier general. The salary of the first lieutenant is $2,000, of the captain $2,400, and of the major $3,000. 3. An acting dentist receives $1,800 a year, and a dentist $2,000 a year. 4. A veterinary surgeon receives a salary of $1,700 a year. 5. A dentist ranks as a first lieutenant and a veterinary as a second lieutenant.

DEATH OF T. GROEDEL, JR.

To the Editor:—Some time ago, I heard that Geheimrat Professor Doctor Groedel of Nauheim, Germany, died. I do not recall having read it in THE JOURNAL, and shall be obliged to you if you will let me know whether you have any information regarding this.

LUDWIG KAST, M.D., New York.

ANSWER.—Dr. T. Groedel, a son of Medizinal-Rat Isidor Groedel of Bad Nauheim, was killed on the western firing line, Jan. 28, 1915. Like his father he was a specialist at Nauheim in heart disease and connected with his sanatorium. His death was mentioned in THE JOURNAL, March 13, 1915, p. 920. We have not heard of any other death in the Groedel family.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 9. Sec., Dr. T. J. Stout, Brinkley; Eclectic, Little Rock, May 9. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

GEORGIA: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, May 4-6. Sec., Dr. C. St. Clair Drake, Springfield.

MASSACHUSETTS: Boston, May 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1, Beacon St., Boston.

MICHIGAN: Detroit, June 1-3. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

NEVADA: Carson City, May 1. Sec., Dr. Simeon L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 16-19. Sec., Mr. Harlan H. Horner, Chief Examinations Division, Educational Bldg., Albany.

New Hampshire September Report

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, Sept. 15-16, 1915. The total number of subjects examined in was 12; total number of questions asked, 65; percentage required to pass, 75. The total number of candidates examined was 3, of whom 2 passed and 1 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Dartmouth Medical School		(1914)	88.5
University of Vermont		(1914)	86.3
	FAILED		
University of Athens		(1898)	36.3

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1912)	Dist. Colum.
Hahnemann Med. Coll. and Hosp., Chicago		(1910)	Oregon
College of Phys. and Surgs., Baltimore		(1902)	Maine
Boston University		(1881)	New York
Harvard University		(1887) (1898)	Mass.
Tufts College Medical School		(1906) (1915)	Mass.
University of Michigan Medical School		(1892)	Vermont
Missouri Medical College		(1897)	Missouri
University of Vermont		(1911) (1913)	Vermont

Maine November Report

Dr. Frank W. Searle, secretary of the Maine State Board of Registration of Medicine, reports the oral, practical and written examination held at Portland, Nov. 9-10, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 12, of whom 9 passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Southern College of Medicine and Surg.*		(1914) 84; (1915)	76
Tufts College Medical School		(1909) 77; (1915)	83
Columbia University, College of Phys. and Surgs.		(1914)	78
Cornell University		(1915)	77
Fordham University		(1913)	79
New York Homeo. Med. Coll. and Flower Hosp.		(1912)	79
University and Bellevue Hosp. Med. Coll.		(1909)	82
	FAILED		
Bowdoin Medical School		(1914)	73
Tufts College Medical School		(1915)	74
University of Toronto		(1915)	73

* These candidates' names do not appear on a verified list of the students enrolled in this institution during the session of 1913-1914. Official reports show that the college was closed in 1914, and that recognition had been withdrawn from it by the Georgia State Board of Medical Examiners.

Massachusetts November Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Nov. 9-11, 1915. The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 46, of whom 23 passed, including 2 osteopaths, and 23 failed, including 7 osteopaths and 1 drugless practitioner. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Med. and Surg.	(1914)	80
Johns Hopkins University	(1913)	85.7
Maryland Medical College	(1912) 75.2; (1913)	75
University of Maryland	(1915)	78.9
Boston University	(1915)	77.1
Harvard University	(1911) 81.4; (1915) 75, 77.4,	79
Tufts College Medical School	(1914) 79.5; (1915) 75, 75.6,	76.7
Albany Medical College	(1908)	75.5
Cornell University	(1915)	84.7
Fordham University	(1914)	75
Medico-Chirurgical College of Phila.	(1908)	78
University of Virginia	(1912)	81.9
McGill University	(1914)	77.7
University or Berne	(1906)	79.5
FAILED		
Baltimore Medical College	(1903)	73
Eastern University*	(1914)	60.3
Maryland Medical College	(1913) 66.8,	72.9
College of Phys. and Surgs., Boston	(1911) 69.2; (1914)	73.9
Tufts College Medical School	(1913) 70.2; (1915) 68.1, 68.5,	70.4
University of West Tennessee	(1915)	69
University of Vermont	(1909) 70.4; (1914)	67.2
Laval University	(1906)	50.7
Montreal School of Med. and Surg.	(1915)	68.1

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

Nevada November Report

Dr. Simeon L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 1-3, 1915. The total number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. One candidate was refused examination on the ground of unsatisfactory diploma. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
California Eclectic Medical College	(1914) 85.5; (1915) 79.8,	90.7
Tufts College Medical School	(1912)	88.1
St. Louis University	(1904)	86.7
Imperial University, Kyoto	(1908)	85.9
FAILED		
California Eclectic Medical College	(1915)	70.9

Six candidates were licensed through reciprocity from May 5 to Nov. 3, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
Leland Stanford Junior University	(1914)	Colorado
Kentucky School of Medicine	(1900)	Indiana
University of Louisville	(1909)	W. Virginia
Baltimore Medical College	(1898)	W. Virginia
University Medical College, Kansas City	(1901) (1904)	Missouri

Texas November Report

Dr. M. P. McElhannon, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Dallas, Nov. 9-11, 1915. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 31, of whom 21 passed, including 6 osteopaths, and 10 failed, including 1 osteopath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1915)	83.2
Rush Medical College	(1914)	89.7
University of Kansas	(1915)	89.1
Tulane Univ. of Louisiana	(1913) 87.1; (1914) 84.3; (1915)	87.2
Tufts College Medical School	(1913)	86
Barnes Medical College	(1911)	83.6*
Jefferson Medical College	(1913)	90.2
Baylor University	(1915)	83.7
University of Texas	(1914) 85.2, 88.6; (1915)	89.8
University of Berlin	(1895)	75
University of Sidney	(1910)	89.4

College	Year Grad.	No. Failed
FAILED		
University of Louisville	(1911)	1
Meharry Medical College	(1915)	2
Memphis Hospital Medical College	(1909)	1
University of West Tennessee	(1913) (1915)	2
Fort Worth School of Medicine	(1912)	1
Institute Litarario, Mexico†	(1909)	1
National School of Medicine, Mexico	(1909)	1

* Graduation not verified.

† The name of this institution does not appear among the list of medical schools of Mexico.

Book Notices

Digest of Comments on the Pharmacopeia of the United States of America and of the National Formulary for the Calendar Year Ending Dec. 31, 1914. By Martin I. Wilbert. Paper. Price 50 cents. Pp. 516. Hygienic Laboratory Bulletin No. 105. Washington: Government Printing Office, 1916.

This octavo volume is printed as Hygienic Laboratory Bulletin 105, and is announced as being the tenth of the present series of the Digest of Comments on the Pharmacopeia. Like the preceding numbers, it represents a comprehensive index of the available literature relating to the nature, object and content of the Pharmacopeia of the United States and the National Formulary. While the references included in this volume are of interest primarily to pharmacists and pharmaceutical chemists, there is much that is of value to the physician, particularly to the physician who is interested in laboratory work either from the clinical or the chemical point of view.

This bulletin attempts to reflect, in a brief form, the essential features embodied in the several installations of the "Abstract of Proposed Changes with New Standard and Description" published during the year 1914, and a summary of the comments thereon which have appeared in medical and pharmaceutical journals. In effect, therefore, this bulletin embodies a summary of the changes which will be embodied in the forthcoming edition of the Pharmacopeia of the United States.

It also includes a somewhat comprehensive review of the fifth edition of the British Pharmacopeia which was published during the year 1914. A point of special interest in connection with the appearance of the British Pharmacopeia is the fact that despite the war and the accompanying political disturbances, it completes the adherence of the several powers signatory to the international treaty of 1906 for the unification of the pharmacopeial formulas for potent medicaments. This pharmacopeia is also interesting in that the committee having the book in charge has endeavored to produce a British pharmacopeia for the whole empire.

Among the additional features of interest included in the bulletin under discussion is a review of the comments on the food and drugs law, the laws designed to regulate the sale and use of poisons, the restrictions on the sale and use of narcotic drugs, the abuses evidenced in connection with the sale and use of so-called household remedies, and the published reports of drug inspection work. The last-named chapter is particularly interesting in that it emphasizes the tremendous amount of work which must yet be accomplished before the medicine supply business can be considered to be based on a firm scientific foundation.

Comments on the actions and uses of drugs are largely confined to reports of pharmacologic investigations and to records of unusual, toxic or secondary effects of official drugs and preparations. The latter feature, combined with an adequate reflection of the variations existing in the available official drugs and preparations, should alone suffice to make the bulletin of practical value to all medical practitioners who are in any way interested in the nature, source and supply of the medicines used or prescribed.

The New Public Health. By Hibbert Winslow Hill, M.B., M.D., D.P.H., Director, Institute of Public Health. Cloth. Price, $1.25. Pp. 206. New York: The Macmillan Company, 1916.

This book is a revision and expansion of articles published in the *Journal-Lancet* and later circulated to the newspaper press at the instance of the Minnesota State Board of Health. Dr. Hill holds that the control and ultimate suppression of infection is a matter about which we already know enough to justify intensive campaign. The new differs from the old public health in that it deals with the individual rather than with his environment. "The Old sought the sources of infection in the surroundings of man, the New in man himself." Dr. Hill adopts the artistic technic of the painters in the presentation of his subject. That part which he desires to bring into relief is alone treated in detail. Having seized his reader's attention by his manner, Dr. Hill leads it over what, in other company, might have proved dull ground. He

has important chapters dealing with individual defense, community defense, public health statistics and administration. In the conclusion the author, after disposing of certain facile but fallacious objections, sums up his argument. Two appendixes contain, respectively, data on infectious diseases and a syllabus of public health teaching, prepared by Dr. Hill in cooperation with the state superintendent of education of Minnesota. An index would have increased the utility of the work.

Miscellany

The Care of Convalescent Narcotic Addicts

The Advisory Committee of the Misdemeanants Court of Philadelphia requested the College of Physicians of Philadelphia to answer the following questions regarding the care of narcotic addicts:

"1. How should the hospital treatment be supplemented after the patients are discharged as cured?

"2. Is there any general rule as to the time of convalescence?

"3. Will the character and time of treatment of convalescence be the same in the cases of morphin, heroin and cocain; or will the treatment of convalescents vary, according to the character of the drug to which they are addicted?"

The College of Physicians authorized its standing Committee on Public Health and Preventive Medicine to formulate answers. Three answers follow:

"Before replying to the above questions, it should be distinctly understood that the consensus of medical opinion does not approve of the term 'cured,' and hence there can be no true convalescent period as applied to drug habitués for the reason that these patients almost invariably, soon or late, return to the 'habit' either by using the same drug or some alternative. This will remain true of most of these unfortunates, so long as they can procure the drugs that give rise to the 'habit.' On the other hand, it is generally admitted that in rare instances a cure is possible.

"With a clear appreciation of these facts, we would respectfully reply to your queries as follows:

"1. After a patient suffering from morphinism has been discharged from a hospital, he should visit either his physician or, in the event of his belonging to the dependent class of the body politic, a first class dispensary for nervous diseases, and one having the benefit of competent social service workers. The latter should visit the patient during the intervals between his visits to the dispensary. This strict surveillance of the patient's habits should be maintained for a long period of time.

"2. There is no fixed rule as to the time of so-called convalescence. The duration of this period will depend on the previous duration of the 'habit' and its effects on the nervous system of the patient, as well as his environment, with special reference to encouragement and moral help.

"3. The time and character of treatment to be pursued after the patient leaves the hospital is practically the same for morphin and heroin habitués, although some observers claim that the heroin habit is more easily and more speedily cured than the morphin habit. In the case of the cocain habitués the proposition is both more difficult and more serious. Cocain causes greater mental and moral changes than do morphin or heroin. As pointed out by Erlenmeyer, cocain causes typical disillusional insanity in which hallucinations are common. Says Lloyd, 'These victims deteriorate rapidly, in both body and mind, and soon become wrecks. In the cocain habitué, especially, there are loss of weight, muscular weakness, tremor, anesthesia and disturbance of the heart and lungs.'

"In our opinion, cocain habitués after being discharged from a hospital must receive the closest attention, either by the home physician or by a competent physician and social service worker connected with an outpatient department of a hospital. This habit being a particularly destructive one, the patient requires, in addition to suggestive directions, tonics, physical exercises and hydrotherapeutic measures extending over a long period of time. The management of all drug habitués should have a suggestive bearing. Finally, it is to be recollected that these patients often use more than one drug, and hence the treatment must be varied accordingly."

Medicolegal

Construction of Statute Requiring Physicians to Keep Records

(People vs. Cohen (N. Y.), 157 N. Y. Supp. 591)

The Supreme Court of New York, Special Term, Erie County, holds good a demurrer to an indictment which charged the defendant with having issued prescriptions calling for heroin, morphin, cocain and other dangerous drugs, without having kept a record of the names of the persons to whom they were issued and delivered, together with the quantity of said drugs prescribed, etc. The court says that the validity of the indictment would seem to turn on the meaning to be given the word "dispense," as employed in Section 248 of the public health law, which reads: "Physicians, etc., to Keep Records. All persons authorized by law to sell, administer, prescribe, dispense or dispose of any of the drugs enumerated in Section 245 of this chapter shall forthwith keep on record the name and address of each person to whom such drug is dispensed," etc. To "dispense" is to deal out; to distribute; to give. A "prescription" is a mere formula for the preparation of a drug and medicine. It may be filled or not, as the person to whom it is given elects; but until it has been filled and the substance delivered, the court thinks there is no "dispensing" of the drug itself. The court is therefore of the opinion that a physician who merely writes a prescription and does nothing more cannot be said to "dispense" the drug or article described in the prescription. Where the physician not only writes the prescription, but himself delivers the drug to the patient, he undoubtedly brings himself within the requirements of the act requiring him to "keep on record the name and address of each person to whom such drug is dispensed." The court does not think this is required, however, where the drug itself is not delivered by the physician. It is difficult to discover how any useful or practical purpose would be served by requiring physicians who do not themselves sell and dispense these drugs to keep a record of such prescriptions, for in such cases the identical record is preserved for public use by those who dispense the drug.

Harrison Narcotic Law Construed Against Doing of Mail Order Business

(Tucker et al. vs. Williamson et al. (U. S.), 229 Fed. R. 201)

The United States District Court, Southern District of Ohio, in sustaining a motion to dismiss the plaintiff's bill asking for injunctive relief with reference to the interpretation and enforcement of the Harrison Narcotic Law, says that the most of their business was a mail order one. They claimed to be physicians who in the course of their professional practice were prescribing for, dispensing and distributing to patients in various states a medicine prepared by them, for the relief of asthma and hay-fever, that contained cocain. The only physician who may under Section 2 (*a*) lawfully dispense or distribute the drug in question is one who is registered and who acts in the course of his professional practice only. He may not—Section 2 (*d*)—obtain it by means of the prescribed order forms for any purpose other than the use, sale or distribution of it in the legitimate practice of his profession. That he must in each instance in which he dispenses or distributes the drug be employed to prescribe for the particular patient receiving such drug is necessarily implied from the pertinent provisions of the act and the purposes to be accomplished by it. He may not engage in the business of selling, unless he sells it in filling his own prescriptions, for the sale of it is, generally speaking, the part of the druggist. He must act strictly within the line of actual employment in a legitimate and professional practice only, in which he personally judges (diagnoses) the nature, character and symptoms of the disease, determines the proper remedy for it, and prescribes the application of the remedy to the disease. Personal supervision accompanies the prescribing. The remedy is to be adapted to the disease and wants of the particular patient. That a physician may

not prescribe for other than the particular patient who employs him and who is to receive the drug follows from the language and import of Sections 4 and 8. Section 4, when it treats of physicians, deals only with the delivery of the drug, and permits its delivery by a person (an individual) only when it has been prescribed or dispensed by a registered physician who has been employed to prescribe for the particular patient who is to receive such drug. The law contemplates that there shall be no promiscuous or covert passing around of the drug to persons who have not employed the physician and received it on his prescription. The regulation promulgated by the Treasury Department that a physician must be actually absent from his office and in personal attendance on the patient in order to come within the exemption of Section 2 (*a*) accords with the design that a physician shall maintain supervision over the patient for whom he prescribes. The department thus places, and the court thinks rightfully so, a more restricted meaning on personal attendance than the courts have placed on medical attendance—it being held that to constitute the latter it is not requisite that the physician should attend the patient at his home, and that an attendance at his office is sufficient. It is by personal attendance that the greater part of the business of a regularly practicing general practitioner is done. The personal attendance clause, therefore, covers the majority of all the cases in which the drug is dispensed or distributed by such a physician. Its effect is to increase the inconvenience and difficulty, and even the expense, of procuring the drug. If, instead of personal attendance on the patient by the physician, the patient calls on the physician at his office for treatment, in which event such physician is required to make a record of the drugs mentioned in the act which he dispenses or distributes, the opportunity is afforded of personally diagnosing, studying, supervising and prescribing for such patient. If a regularly practicing physician may prescribe without seeing his patient, it is in occasional instances only.

Society Proceedings

COMING MEETINGS

American Medical Association, Detroit, June 12-16.

American Academy of Medicine, Detroit, June 9-12.
American Assn. of Genito-Urinary Surgs., Washington, D. C., May 9-10.
American Association of Path. and Bact., Washington, D. C., May 9-11.
American Climatological and Clin. Assn., Washington, D. C., May 9-11.
American Dermatological Association, Washington, D. C., May 8-10.
American Gastro-Enterological Association, Washington, D. C., May 8-9.
American Gynecological Society, Washington, D. C., May 9-11.
American Laryngological Association, Washington, D. C., May 9-11.
Amer. Laryn., Rhin. and Otol., White Sulphur Sprgs., W. Va., May 5-6.
American Neurological Association, Washington, D. C., May 8-10.
American Ophthalmological Society, Washington, D. C., May 9-11.
American Orthopedic Association, Washington, D. C., May 8-11.
American Otological Society, Washington, D. C., May 9-10.
American Pediatric Society, Washington, D. C., May 8-10.
American Society of Tropical Medicine, Washington, D. C., May 9-11.
American Surgical Association, Washington, D. C., May 9-11.
American Therapeutic Society, Detroit, June 9-10.
Arizona Medical Association, Phoenix, April 26-27.
Arkansas Medical Society, Texarkana, May 2-4.
Association of American Physicians, Washington, D. C., May 9-11.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Cong. Am. Phys. and Surgs. of No. Am., Washington, D. C., May 9-10.
Connecticut State Medical Society, Bridgeport, May 17-18.
Florida Medical Association, Arcadia, May 10-12.
Illinois State Medical Society, Champaign, May 16-18.
Iowa State Medical Society, Davenport, May 10-12.
Kansas Medical Society, Topeka, May 3-5.
Louisiana State Medical Society, New Orleans, April 25-27.
Maine Medical Association, Portland, June 7-8.
Maryland Medical and Chirurgical Faculty, Baltimore, April 25-27.
Massachusetts Medical Society, Boston, June 6-7.
Mississippi State Medical Association, Greenville, May 9-11.
Missouri State Medical Association, Excelsior Springs, May 8-10.
National Assn. for Study and Prev. of Tuberc., Wash., D. C., May 11-12.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New Jersey Medical Society, Spring Lake, June 20-22.
New York State Medical Society, Saratoga Springs, May 16.
North Dakota State Medical Association, Devils Lake, May 10-11.
Ohio State Medical Association, Cleveland, May 17-19.
Oklahoma State Medical Association, Oklahoma City, May 9-11.
Rhode Island Medical Society, Providence, June 1.
South Dakota State Medical Association, Aberdeen, May 23-25.
Texas State Medical Association, Galveston, May 9-11.
West Virginia State Medical Association, Wheeling, May 16-18.

TENNESSEE STATE MEDICAL ASSOCIATION

Eighty-Third Annual Meeting, Held at Knoxville, April 3-6, 1916

The President, Dr. E. C. Ellett, Memphis, in the Chair

Surgery of the Gall Passages

Dr. C. N. Cowden, Nashville: I advise intervention when a patient has had two or three distinct attacks, for a delay often means serious damage not only to the gall passages, but to the neighboring organs as well, such as pancreatitis, bands of adhesions, and other complications necessitating more difficult operative measures, higher mortality, even in the hands of experts, and more likelihood that the patient will not be completely relieved. The Mayos a few years ago were the chief advocates of cholecystostomy. While on a visit to their clinic a short time ago I saw drainage of the gallbladder in only one case, whereas over twenty cases were subjected to complete removal of the gallbladder which showed any great degree of pathology. Naturally, the surgeon concludes from his experience that cholecystectomy is the only method that is a certain cure. The surgeon must decide for each individual case, and to guide us aright, Crile has submitted some simple rules to serve to direct us. If the gallbladder has approximately normal walls, and the cystic duct is patulous, as is manifested by a free appearance of normal bile into the bladder when it is opened, then no matter what the size or number of the stones, no return of the symptoms will follow a simple drainage. Again, he insists that where we have acute cholecystitis with severe symptoms, with the patient not in the best of condition, mere drainage followed by cholecystectomy, if we have a return of symptoms, is preferable and freer from danger.

DISCUSSION

Dr. William D. Haggard, Nashville: We now look on infections of the gallbladder as largely lymphatic; that is, the infection is from behind and it has come from the various and sundry sources throughout the body. Realizing that fact, we must look on it as an infection, and the stone or stones really as a terminal process. If the case is quite acute and it would add something to the mortality to remove the gallbladder, drainage should suffice; but if the patient is not too sick or too fat, and the common duct is patent, it is a simple and easy matter to remove the gallbladder.

Dr. William Litterer, Nashville: All gallbladder trouble is due to bacterial infection. There are a great many cases of typhoid infection that are attributed to infections of the gallbladder, but the patients have never had gallbladder disease.

Intestinal Obstruction

Dr. W. M. McCabe, Nashville: The treatment of intestinal obstruction is surgical. If one possessed all the magnesium sulphate, castor oil, croton oil and physostigmin sulphate which has been wasted in this condition, he would be a Croesus. If the patient is seen early before the stage of toxemia, a radical operation should be done by the ordinary methods, but it is those cases in the terminal stages of toxemia of which I especially desire to speak. Morphin, one-fourth grain, and atropin, one one hundred fiftieth grain, are administered one-half hour before the operation is begun. The deep structures of the abdominal wall are infiltrated with 0.2 per cent. novocain solution containing epinephrin. The skin is now infiltrated and the abdomen opened. A knuckle of ileum as low down as possible above the point of obstruction is caught in a Smith forceps, and a small area is surrounded by two purse string sutures of catgut. The bowel is opened and a Pezzar catheter is inserted and held in place by the first purse string. If the catheter is to be left in for some days the second purse string is tied and inverts the first purse string. If the catheter is to be removed immediately, the first purse string is to be loosened or cut, and the opening is closed with the second purse string. While the bowel is emptying itself through the catheter, a search is made for the point of obstruction, and if found is dealt with according to the pathologic condition of the patient. If the patient's condition forbids a search for the obstruction, the catheter is left in the bowel and allowed to remain for sev-

eral days. One will be surprised to find that many patients with apparently hopeless cases will begin to improve rapidly and in a few days pass fecal matter by the anus. Normal saline is also given in abundance by hypodermoclysis and enteroclysis.

Of seventy patients with intestinal obstruction operated on, we have saved 50 per cent. Of fourteen patients entering the hospital last year, one died without operative interference, and thirteen had enterostomies performed, with six deaths and seven recoveries.

DISCUSSION

DR. H. M. TIGERT, Nashville: In operating on these patients, one should not make a prolonged and fruitless search for the obstruction; but if enterostomy is done, it will be found that many patients will survive who otherwise would die, and in a great percentage of the cases it may not be necessary to go back and do any further operation.

DR. C. N. COWDEN, Nashville: The moment that intestinal obstruction takes place, Nature tries to protect itself by limiting absorption from the cavity of the intestine above the seat of obstruction, and when the obstruction is relieved one turns lots of toxic material into the lumen of the bowel below, absorption takes place rapidly, and the patient dies of overwhelming toxemia. What the surgeon needs to do in these cases is to perform enterostomy, put in a fecal catheter and bring it to the angle of the wound, and it will close.

DR. J. B. HASKELL, Memphis: To give cathartics indiscriminately for pain in the abdomen and inability on part of the bowels to move simply exaggerates the condition. Enterostomy should be resorted to.

DR. WILLIAM T. BLACK, Memphis: In my latest case, the patient went five days before I saw him. He had fecal vomiting for three or four days due to obstruction from a gallstone in the small intestine. The principal thing in these severe cases is to do enterostomy.

DR. W. M. MCCABE, Nashville: We have more patients with intestinal obstruction coming in who are practically moribund than all other types of cases combined. I have seen patients die within fifteen or twenty minutes after they entered the hospital.

Tuberculosis of the Kidney

DR. W. C. DIXON, Nashville: The treatment of renal tuberculosis is surgical, consisting in nephrectomy as soon as a diagnosis is made. Rest, diet, fresh air and tuberculin have been tried without results. Cases reported as cures will usually prove to be instances of autonephrectomy, so-called, in which the ureter is completely obstructed. As the irritated urine fails to reach the bladder, the symptoms improve.

DISCUSSION

DR. L. E. BURCH, Nashville: The majority of patients with renal tuberculosis present themselves to the practitioner with the symptoms of cystitis, frequency of urination and painful urination. Much could be gained if the practitioner did not look on cystitis as a disease but merely as a symptom of a disease.

DR. PERRY BROMBERG, Nashville: Any physician is justified in suspecting he has to deal with tuberculosis of the bladder in any case of cystitis that has been irrigated with silver nitrate solution and has been treated for a period of three or four weeks and does not yield.

A Simplified Technic in the Application of Schick's Reaction for Testing Immunity to Diphtheria

DR. WILLIAM LITTERER, Nashville: The necessary articles are a 1 c.c. hypodermic syringe, graduating to tenths, a No. 26 or No. 27 gage needle, sterile normal salt solution and the diphtheria toxin. The toxin is diluted in the salt solution according to the strength as determined by laboratory tests. The amount of the solution used will depend on the dilution. The dilution should be so made that approximately 0.2 c.c. will be the amount, as it makes a good sized bleb.

The injection should be made into the skin and not subcutaneously. This is easily accomplished if a small bit of the skin is held tightly between the thumb and forefinger of one hand, and the barrel of the syringe in the other is held lower than the needle point. The reaction, if positive, is shown by an area of inflammation varying in extent from 2 to 5 cm. in diameter. It is more intense in the center and lasts for about fourteen days, when it gradually disappears, leaving a brown desquamating surface. Those giving such a reaction are susceptible to diphtheria, while those who do not, have a natural immunity which is adequate to protect them.

A Plea for the Early Recognition and Treatment of Hyperthyroidism

DR. J. A. CRISLER AND DR. E. J. JOHNSON, Memphis: Simple goiters are seen in young girls merging into active menstrual life, and in pregnant women. All others are serious. The least harmful of the serious class are probably the large, knotty, soft, adenomatous, colloid and cystic types, and even in these types, whose greatest evil may appear to be only in the deformity presented and in certain pressure symptoms, cancer is not an infrequent invader, on the one hand, while, on the other hand, a profound thyrotoxicosis may intervene without much warning and do irreparable damage.

Menstrual Disorders

DR. LUCIUS BURCH, Nashville: All menstrual disorders are symptoms, and should call for a careful history of the case, followed by a thorough examination. This routine should invariably be carried out before prescribing. The etiologic factor in amenorrhea is usually outside of the pelvis. The majority of cases of menorrhagia and metrorrhagia are due to one of the following diseases: cancer, abortion, fibroid tumor, extra-uterine pregnancy and endometritis. Those cases of dysmenorrhea that are not due to tumors, diseased adnexa, extreme displacements or obstruction may be relieved without resorting to surgery.

Dacryocystitis as a Predisposing Cause of Corneal Ulcers

DR. LEWIS M. SCOTT, Jellico: An infected tear passage may be found in the greater number of serpiginous ulcers of the cornea. The specific micro-organism in such ulcers is the pneumococcus, and an injury to the cornea furnishes the point of entrance for such organisms in most, if not all, cases. The laboring classes are the principal sufferers from attacks of serpiginous ulcers. This is due to the fact that they are prone to neglect conditions of the nares and lacrimal apparatus needing treatment. These people are more susceptible to eye injuries, and they are disposed to overlook the importance of early and careful attention to such injuries. Chronic dacryocystitis is usually due to an extension of some catarrhal affection from the nasal mucous membrane by way of the nasal duct. This being true, most cases of lacrimal sac infections can be prevented, if early and proper attention is given to the relief of all such conditions in the nares. When once dacryocystitis is established, anything short of complete obliteration of the sac will be of little effect. We may relieve the trouble for a while by probing and irrigation, but the same underlying conditions still exist which are liable to set up a reinfection at any time. Just so long as these infected tear passages exist, just so long will the patient be predisposed to corneal ulcers, it only being necessary for a wound on the cornea to permit the invading micro-organism to gain an entrance.

Acute Middle Ear Troubles

DR. WALTER DOTSON, Lebanon: If we are sure that we are dealing with a case of acute catarrhal otitis media, drainage may be secured by one of three ways: (1) by incision through the drum membrane; (2) by applying medicated tampons to the drum membrane to produce an exosmosis of the liquid contents of the middle ear cavity, and (3) by catherization of the eustachian tubes and forcing compressed air into the tympanic cavity to expel the liquid content, or by alternating compression with suction through the catheter. When the case is one of acute suppurative otitis media, or even when we are in doubt as to which form, then there is only one means of procuring proper drainage,

and that is by a long, clean curved incision through the drumhead. I condemn a small or simple puncture of the drum membrane. Paracentesis of the drum membrane is not sufficient. It does not give ample drainage, and is neither safe nor sane surgery. The incision should begin at the upper part of the bulging point and be curved through it down to the lowest point of the membrane, cutting down into the cartilaginous ring of its insertion. After making a free incision, I insert a cold wick drain into the incision and fold this loosely, not pack it, in the external auditory canal, leaving the other free end on the outside of the canal, and dressing is completed by a pad of absorbent cotton.

The Significance of Retinal Changes in Cardiorenal Vascular Disease

DR. F. P. CALHOUN, Atlanta, Ga.: A careful inspection of the fundus of the eye in all cases should be a part of the routine examination by the ophthalmologist. Slight changes in the retina or its blood vessel system are often warnings of a serious renal or general vascular disease. Distinct arteriosclerotic changes in its retinal vessels indicate a similar state in the cerebral vessels, but not the reverse. Arteriosclerotic changes and retinal hemorrhages are each indicative of an increased blood pressure. Obscuration in vision associated with retinal arteriosclerosis offers a grave prognosis for sight. Retinal exudates occurring in a nephritis are of the utmost gravity, death usually occurring within two years. The retinitis of pregnancy does not offer the same grave significance except for the permanent impairment of sight. Retinal changes due unquestionably to syphilis do not offer any very unfavorable significance regarding life.

The Significance and Mismanagement of Acute Abdominal Pain

DR. L. L. SHEDDAN, Knoxville: The conditions which give rise to acute agonizing pain in the abdomen of a paroxysmal character are: (1) acute intestinal colic, produced by the ingestion of some indigestible or impure food; (2) renal colic; (3) hepatic colic; (4) acute intestinal obstruction; (5) the crises of disease of the cord, and (6) crises of movable kidney.

The conditions which cause acute agonizing pain which is constant in character are: (1) perforations of hollow viscera; (2) acute hemorrhagic pancreatitis; (3) acute perforating or gangrenous appendicitis; (4) thrombosis and vascular changes in the mesenteric vessels; (5) twisting and torsion of the pedicle of abdominal and pelvic tumors; (6) tubal abortion or ruptured tubal pregnancy or abscess, and (7) pain of vertebral caries or cancer.

The Solar Treatment in Affections of Bones and Joints

DR. WILLIS C. CAMPBELL, Memphis: Heliotherapy, as advocated by Rollier, is by no means a simple measure to be lightly entrusted, but must be carefully and scientifically carried out directly under the supervision of one who is experienced with the method and necessary orthopedic measures. A most careful adjustment of orthopedic appliances is essential to healing of the process and the prevention of serious and unsightly deformities and malformation. Roentgenograms should be made at regular intervals, which will indicate the effect of treatment by the changes in the bone. The solar rays not only cause improvement in the general condition of the patient, but also exert a definite curative action on the local process, as evidenced by the Roentgen ray. The improvement of the patient is synchronous with pigmentation of the skin. There is marked and decided beneficial effect on acute nontuberculous septic conditions, and also tuberculous lesions secondarily infected. Consistent espionage is required on the part of the surgeon to obtain perfect cooperation on the part of the patient.

Treatment of Hip Disease

DR. A. G. NICHOL, Nashville: Early fixation in recumbency until all pain, spasm and tenderness has subsided, followed by ambulatory treatment, without weightbearing, the limb being fixed in a long plaster spica, should be recommended; then weightbearing is possible without pain and may be allowed. In the latter part of the treatment, the short spica of Lorenz may be used with greater comfort to the patient, and allow the use of the leg muscles, which will prevent much atrophy in convalescence. A supporter brace is used to be removed at night, gradually discarding appliances when all evidence of active disease has disappeared. In some cases it is advisable to use the traction method, especially should there be marked involvement of the acetabulum, but as a routine the fixation with plaster of Paris is to be preferred because of the certainty of adjustment, and the assurance that the parents cannot disturb the appliance and otherwise interfere with the mechanical intent. There are many arguments in favor of the traction method, but after weighing both sides well I feel that there is more to be gained by fixing the patient in a plaster of Paris spica than a brace that is often a source of much discussion and manipulation on the part of the parent and the spoiled child. Of great importance in either method is the continuance of supervision of all cases over a long period of time, and under no conditions should one dismiss a case until all signs of active disease have disappeared.

An Analysis of one Hundred Consecutive Cases of Appendicitis with Operation at the Newell Clinic

DR. E. DUNBAR NEWELL, Chattanooga: Of these 100 cases, in seventy-five we did not use a drain of any kind and there was no death. In this series of seventy-five cases we have included the chronic appendixes, the subacute cases, the cases of ordinary acute appendicitis in which the infection was confined entirely to the appendix, and the cases in which the appendix was tense from infection and pus and there was some plastic exudation and some seropus.

In twenty-five cases of this series of 100 cases we did use a drain of some kind, and in this series there were five deaths. In this drainage series are included gangrenous appendixes, ruptured appendixes with localized peritonitis, and abscess cases. In the gangrenous cases with only slight involvement of the surrounding tissues, we usually use a small soft rubber drain or a cigaret drain for forty-eight hours. When the appendix had been ruptured, a soft rubber tube was used, and in the abscess cases two soft rubber tubes were used, one inserted low down toward the pelvis and the other inserted over the base of the appendix.

In the seventy-five nondrainage cases, the stump of the appendix in every instance was ligated and inverted and covered with the stump of the meso-appendix. In the cases in which the appendix was gangrenous but there was no abscess cavity, the appendix was removed in every instance, and there was no death in this series.

Of the twenty-five drainage cases, in eight the appendix was not removed. The appendix was not removed, as there was a large abscess cavity in each instance, the patients were all in a serious condition, and the appendix could not have been removed without breaking down extensive adhesions and prolonging the operation to a dangerous limit. Of the five deaths, in only one case had the appendix been removed. During the time that this series was taken, in not a single instance did we fail to operate in any case because it was too far advanced, even though we felt sure the operation would not relieve, and so advised the relatives and friends. We were always willing to give the patient the benefit of the slim chance for life, even at the expense of adverse criticism and of our statistics. In several of the drainage cases, the duration from the onset to the time of operation was less than forty-eight hours, but in none of the five deaths was the duration less than five days, and in one case it was twelve days. A more convincing argument for early operation could not be made.

Tumors of the Female Breast

DR. J. L. MCGHEE, JR., Memphis: If we are going to operate only in cases of cancer of the breast which can be diagnosed clinically, then we shall never get very much better results than were secured twenty-five or thirty years ago. Murphy, as late as February, 1916, stated that "the ultimate mortality of cancer of the breast is just as bad

today as it was thirty-five years ago, if not worse than it was then." All lumps in the breast should be considered potential cancers until proved otherwise at the time of operation. The mere presence of a lump or knot in the breast is sufficient evidence to advise exploration and examination. Discharges from the nipple, bloody, serous or milky (from the nonlactating breast) are signs calling for the most prompt and searching study.

What Results Have the Newer Tests for Kidney Function Brought the Internist?

DR. J. B. MCELROY, Memphis: To determine the sufficiency or insufficiency of the kidneys, various clinical signs and symptoms have long been regarded as evidence of insufficient functional activity of the kidney, such as edema, uremia, cardiac hypertrophy, hypertension, and the presence of albumin and casts in the urine. But, as Blum says, it is not possible to recognize these symptoms in all cases of insufficiency in the kidneys, for sometimes all of these symptoms are indicated in the etiologic and pathologic relations of various kinds, and again there are cases of diffuse diseases of the kidney in good compensation in which neither edema, uremia, nor cardiac hypertrophy is present. Histologic examination shows always in such cases disturbance of an inflammatory nature in some areas and compensatory hypertrophy in other areas of the same organ.

It is in such cases that the newer methods offer considerable aid in the detection of insufficiency on the part of the kidney, and conversely, sometimes in eliminating the possibility of an insufficiency. Korányi, in the earlier days of functional kidney tests, showed that every diseased kidney is associated with a hyposthenuria, an inability to pass a strongly concentrated urine, and also that the power to excrete a more dilute urine is lost as well. These observations have been confirmed by Hedinger-Schlayer and by Mosenthal. So it would seem that we have in the test meal a method of detecting early kidney insufficiency and conversely excluding it when suspected.

All are agreed that these tests are of great value as to prognosis. Thayer and Snowden have clearly shown this with respect to phenolsulphonephthalein by a comparison of this test with the anatomic lesions in fifty-four cases coming to necropsy. This has also been shown with respect to the other tests—the test meals, nonprotein nitrogen, creatinin and increased salt retention.

Unquestionably the therapy by these tests has been placed on a more rational and individual basis. They have led to a healthy skepticism as to the value of diuretics in nephritis. They have shown that some patients will need a salt poor diet, that some will need a low protein diet, that a low protein diet should be accompanied by a large water intake, and that hypertension is not necessarily an indication for a low protein diet. In fact, our former management has been materially modified, as may be seen from the recent excellent article of Elliott and Janeway. With care and proper reading, the newer tests for kidney function have brought very beneficial results with respect to the diagnosis, prognosis and the treatment of the nephropathies.

The Percy Cautery Treatment of Inoperable Carcinoma of the Uterus, with Preliminary Report of Cases

DR. EDWARD T. NEWELL, Chattanooga: In the past fourteen months I have operated in fourteen cases. Eight patients were in a desperate condition and too far advanced for a hysterectomy. The parametrium was involved in all of them and the uterus fixed. There has been no primary mortality in any of these operations. All the patients are doing well with one exception. She has a return. She came back to me about six months ago with a nodule in the posterior vaginal wall, on which I used the hot cautery, knowing at that time I was affording only temporary relief. She had originally an involvement of the posterior vaginal wall and rectum. She is 55 years old, and was bedridden when I first saw her. All the remainder have gained in weight, have lost the cachexia and are doing their own work and none show signs of recurrence. Considering the high mortality and morbidity of a Wertheim operation in a widespread involvement of the tissues, unless the patient is an unusually good operative risk, I do not believe this operation is equal to the Percy cautery treatment.

CONFERENCE ON THE TRAINING OF MEDICAL MISSIONARIES

Held in New York, April 5 and 6, 1916

W. DOUGLAS MACKENZIE, D.D., Chairman of the Board of Missionary Preparation, in the Chair

The Different Types of Medical Service Called for in the Foreign Field and the Personal Qualifications Essential to Success

DR. ALDEN R. HOOVER, Missionary of the American Board in Turkey: The medical missionary must be prepared to do pioneer work and to demonstrate the worth of Western medicine. He must be able to modify his cut and dried classical methods in case of necessity, to treat patients and to perform operations under adverse conditions, and that without becoming careless of technic or skill. He must be able to build up medical work on scant funds and to give his time generously to the service of the poor, to advance in the face of governmental opposition, to use tact in cooperation with the egotistic and jealous, narrow-minded, native practitioner. He must be skilful in hospital management and the keeping of records, for he should contribute to medical journals for the benefit of the profession at large and do his part to keep the spirit of scientific investigation alive. He should be prepared to apply the principles of preventive medicine and to demonstrate the value of quarantine, disinfection and fumigation, and to teach the methods whereby infant mortality may be lessened. In addition to the regular postgraduate course the medical missionary should have a course in tropical diseases such as is offered at Harvard or London, a good preparation in bacteriology, laboratory methods, and diagnosis, blood examination with special attention to parasitology, epidemiology, toxicology, and such diseases as malaria, yellow fever, plague, sleeping sickness, etc. In the more civilized countries the systems of medicine existing need combining, remodeling, reconstructing and revising, while in the uncivilized countries the entire system of modern medicine must be introduced. The medical missionary should be a student of social conditions, hygiene, sanitation and general public health problems; he should also be a good teacher with a hobby such as agriculture, climatology, botany, zoology, etc., since by the information thus gained he may be able to contribute to the world's knowledge. We should substitute the well trained medical missionary for the "pill-box evangelist." We should have medical schools and training schools in certain strategic centers in various countries. The medical missionary must be able to see and to solve large problems, as did Gorgas in Panama, Strong in Serbia, and Greenfell in Labrador.

The Preparation of the Medical Missionary for His Task

DR. HORACE D. ARNOLD, Dean of the Graduate School of Medicine in Harvard University: It is not necessary that the medical missionary should be as fully prepared in theology as the ordained missionary, but he should be in sympathy with evangelical work. It seems to me that there is greater need for a thorough foundation in medical knowledge, and for skill in a broader field of medicine for the medical missionary than for a physician who practices at home. When we come to speak of medical standards we find it a little difficult as the situation is still chaotic in this country, each state having its own examining board. The requirements of the Council on Medical Education of the American Medical Association may be taken as the desirable minimum standard for medical missionaries. It is recommended by the Council that medical students take two years in college, including courses in physics, chemistry and biology and after graduation to spend a year as an intern in a good hospital. It would be wise for the missionary societies to place their minimum requirements as far as possible on this level. The broader education of four years in college is desirable, but

not essential. During the four years in medical school the student has all he can do to pursue his medical studies, and should not attempt to carry on other studies; neither should he attempt to specialize during this four years, except by the choice of optional or elective courses. The additional preparation which may be needed for the medical missionary may be obtained by summer courses and by a year of special preparation after he has completed his year in a hospital, when he may give attention to those branches requiring special technical skill. These are surgery, diseases of the eye, ear, nose and throat, obstetrics, gynecology and diseases of children. Preventive medicine, hygiene and sanitation should also be required, and tropical medicine if it is called for by the locality to which the medical missionary is to go. This would take until he is about 26 years of age; so it would seem that if we are to have a well equipped physician we cannot have a well trained missionary, that is, if he enters the field still young enough to be adaptable and energetic enough to be progressive. Medical missionary societies must also face the problem of keeping their physicians up to date. Every appointment to the medical missionary service should be conditioned on the passage of an examination by the medical examining board of some state or other authority.

DISCUSSION

Dr. Mathine, formerly of Turkey: Some medical missionary boards in their medical administration have one school of medicine and some another; some employ osteopathic and homeopathic physicians, and some physicians of the regular school. This presents a problem.

Dr. Atterbury, China: There is nothing that so chills missionary work as a medical missionary who is afraid of the evangelical side of the work and is not enthused by religion. We should have an institute for the religious training of the medical missionary as well as for his secular training.

The Preparation of Women for Medical Mission Service, and How It Should Be Differentiated, If at All, From that of Men

Dr. Belle Allen, Baroda, India: Ideally the woman student needs a volunteer convention for vision and inspiration, scholarships provided conditionally, four years in college, and a degree with majors in biology and chemistry. During vacations she should take courses in sociology and psychology. She should acquire the scholarly habit, the world vision habit, the learner's habit and the "win one" habit. She should have an A.M. degree from a teacher's college, four years' course in a Class A medical college, and a year in a large general hospital. Then she should go into a hospital in the field in which she expects to work while she is acquiring the language. If she is fitted intellectually and temperamentally for laboratory work, she should be prepared to do research work. She should be prepared to train others for administrative work, and be capable of translating suitable textbooks into the language of the people among whom she works. Above all, she should be an interpreter of Christianity. The same medical knowledge is requisite for both men and women, remembering that the medical missionary has to deal in the Orient with a different social order from that of the Occident. The women, especially those of the better classes, have been kept in seclusion and have an innate modesty and shrinking from the male physician. This attitude should be respected. I would advocate genito-urinary work for men by men and for women by women physicians.

Preparation of Medical Missionaries in Addition to Their Medical Studies

Dr. Paul W. Harrison, Arabia: There are three essentials for the medical missionary. These are (1) biblical training; (2) five years' first class medical training, and (3) two years in the field gaining a knowledge of the language. Many additions have been suggested, but so much time is already taken up that before we introduce anything further we must show that it will be more valuable than something now studied. It is a question whether a study of the sociologic and economic conditions of a country are not of as much importance as a thorough knowledge of the language of that country. For the present our efforts should be directed along the lines of high professional standards and a knowledge of the language, regarding the other subjects as non-essentials.

DISCUSSION

Dr. Frank K. Sanders, New York: In our discussion and papers thus far we have been regarding this matter from one side only. I should like to look at it from another angle. What should be done with the one, two or three years immediately succeeding the medical course? If two years are spent in hospitals, should not one of these be spent in a hospital at home and one in a hospital abroad, and in the latter case would it not be possible to use this second year as a language year as well as a hospital year?

Dr. H. D. Arnold, Boston: My answer would be that the student should have two years' hospital preparation. I do not think it feasible to have a hospital experience abroad equivalent to the work of an intern in a good hospital here. There would be a definite advantage in combining the work in the field with further hospital work under a good man in a hospital in the field.

Rev. William McClure, M.D., Honan, China: I wish to emphasize the importance of a course in Bible study. I do not know just where it should come, but probably with other supplementary studies during the college course.

The Fundamental Objectives and Purpose of Medical Missionary Work From the Standpoint of Missionary Administration

Dr. Robert E. Speer, New York, Secretary of the Board of Foreign Missions of the Presbyterian Church: Thus far there has been no mention of one objective of missionary work, and that is the care of the health of other missionaries. In some localities this may be more important than in others. A second objective of medical missionary work is to do good; at times this end may be obtained by refusing to do good; the research worker refuses to practice medicine, believing that by concentrating his efforts he may do greater good. A third objective is the relief of suffering, yet the Rockefeller Medical Board in its Branch of the Harvard Medical School in China, though not designed to relieve suffering directly, will eventually greatly diminish suffering. A fourth great objective of the medical missionary is to remove prejudice and gain access to the minds and hearts of the people. The introduction of sanitation and hygiene is one way of opening the door so that it will be more easy of access to the evangelist. We should keep control of the medical schools in missionary countries, for it is a mistake to give the materialistic people modern medicine without religion. Dr. Welch realizes this when he says that we cannot give China our modern medical education without religion, because the mental attitude of the Chinese is entirely materialistic and there is an entire absence of the spirit of altruism that pervades the Western atmosphere, and a failure to grasp the spirit of philanthropy. In a letter which I have just received from a medical missionary in Persia, the writer says: "If men knew the joy of this work they would be falling over each other to get these places. This medical work goes deeper into all phases of life than any other sort of work would do." The claims of missionary work on the medical profession are great. The man going into the work should have the spirit of the evangelist. He must have singleness of purpose and give himself up for life, resolved to live poor and to die poor. He should have the same spirit as the ordained ecclesiastic, for he must be able to handle superstition as well as disease, and, indeed, his success in conquering disease often depends on his ability to overcome superstition.

Dr. Atterbury, China: It would be a mistake to have Western science go into the East on purely a materialistic basis. Where charlatanry has gained a foothold in these localities it has done immense harm. Medical service should be rendered by the missions and by men spiritually illuminated, and in this way we may save whole races of materialists.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

April, XI, No. 4, pp. 245-308

1 Postoperative Management of Pyloric Stenosis. (Based on Fifty Cases.) E. A. Morgan, New York.
2 Practical Value of Guinea-Pig Test for Virulence of Diphtheria Bacilli. J. A. Kolmer, S. S. Woody and E. L. Moshage, Philadelphia.
3 *Methods of Using Diphtheria Toxin in Schick Test and of Controlling Reaction. A. Zingher, New York.
4 *D'Espine's Sign in Childhood. J. L. Morse, Boston.
5 Case of Acrocephalosyndactylism—Teratologic Type. H. O. Ruh, Cleveland.
6 *Presence of Ketones and Betahydroxybutyric Acid in Urine of Normal Children. B. S. Veeder and M. R. Johnston, St. Louis.
7 Secretion of Bile in Icterus Neonatorum. A. F. Hess, New York.
8 Case of Secondary Hypertrophic Osteo-Arthropathy in Girl Eleven Years old. C. Herrman, New York.

3. **Diphtheria Toxin in Schick Test.**—The results obtained by Zingher with the test in 2,700 normal children, show that from 17 to 32 per cent. between the ages of 2 and 16 years give a positive reaction and are probably susceptible to diphtheria.

4. **D'Espine's Sign in Childhood.**—Six hundred and sixty-six patients seen by Morse during the last three years form the basis of this study. In 626 of the 666 children, or 94 per cent., the change in the voice sound occurred between the seventh cervical and the first dorsal spines. The fact that D'Espine's sign was present in but forty of 666 children, or only 6 per cent., shows that D'Espine's sign is uncommon in the children of the wealthy and well-to-do classes. D'Espine's sign was very seldom present in these children before 5 years; it was most common between 8 and 9 years, and its frequency diminishes from that time on. Morse concludes that D'Espine was correct in his original contention that the normal change in the voice occurs between the seventh cervical and the first dorsal spines. D'Espine's sign is present, therefore, when the bronchial voice or whisper is heard below the seventh cervical spine.

6. **Ketones and Betahydroxybutyric Acid in Urine.**—Small amounts of ketones and betahydroxybutyric were always found by Veeder and Johnston in the urines of normal children when their caloric requirements were fully covered by the diet. The amount was small and varied from 20 to 100 mg. in terms of acetone in twenty-four hours. The average amount excreted was from 50 to 80 mg. The age, sex and body weight of the child apparently had no effect on the amount. As a rule the amount of betahydroxybutyric acid was somewhat greater than the amount of ketones, but this did not always hold true. The authors regard these substances as present in small amounts in the urine of normal children. The large quantity of "acetone bodies" in the urine in febrile conditions and on restricted diets is due to the increase of substances normally present, rather than to the appearance of abnormal substances.

American Journal of Orthopedic Surgery, Boston

April, XIV, No. 4, pp. 191-258

9 *General Heliotherapy in Treatment of Bone and Joint Affections; Report of Cases. W. C. Campbell, Memphis, Tenn.
10 *Painful Anterior Arch of Foot; Operation for Its Relief by Means of Raising Arch. R. O. Meisenbach, Buffalo.
11 *Arthroplasty of Interphalangeal Joints. J. P. Lord, Omaha.
12 Further Application of Intra-Articular Silk Ligament in Flail Joints of Poliomyelitis Paralysis (Hip and Knee). B. Bartow, Buffalo.
13 Case of Arrested Development of Carpus and Tarsus. J. K. Young, Philadelphia.

9. **General Heliotherapy in Treatment of Bone and Joint Affections.**—Campbell has used the sun treatment in twenty-eight cases, in eight of which sufficient time had not elapsed to obtain results. In four with fistulae improvement was rapid in three, but for various reasons exposures could not be continued. Of the remaining 16 in which the treatment was satisfactorily given, 7 were tubercular, 4 osteomyelitis, 2 pneumococcic arthritis, 1 periarthritis following direct infection of the knee joint, 1 arthritis deformans, 1 decubitus. All with the exception of one case were treated within the city of Memphis, Tennessee, which is about 200 feet above the sea level, having a mean temperature of 61.7 F. (winter 42.5, summer 79.4); average number of rainy days per year, 115. Patients have been exposed every month in the year, but more continuously from March 1 to December 15. No method of fixation except the Bradford frame and extension has been used and no medication except an occasional light purgative. The improvement has been so rapid and so real that Campbell feels that the treatment has a definite action on the local process.

10. **Painful Anterior Arch of Foot.**—Meisenbach raises the heads of the metatarsals by doing an osteotomy on these bones, that is, the heads are elevated in such a way that the tendons at the same time act in an elongated position, raising the anterior arch, removing the pressure and straightening the toes, so that the new position causes the flexor tendons to stretch rather than to contract. Under ether, with the legs of the patient flexed on the operating table and a shot bag under the plantar surface of the foot, a very narrow osteotome (1 to 8 inches) is driven in the shaft of the metatarsal bone 3 cm. from the metatarsophalangeal joint space. The cutting surface of the osteotome is first driven parallel with the flexor tendon of the given integral, so as to avoid the tendon, and driven slightly oblique, until the periosteum has been cut through. It is then forcibly turned at right angles to the shaft of the metatarsal bone and the cortex of the bone chiseled through, as in osteotomy. After all the metatarsals have been divided, the surgeon places his hand underneath the anterior arch, and with a gentle pressure raises it. The toes jump forward as if the tendons had been divided, giving the result desired. Hard felt pads, which have previously been cut in a beveled oval, should then be placed underneath the anterior arch somewhat obliquely, in a line from the tuberosity of the scaphoid to the center of the anterior arch. The felt pads should be held in position by means of adhesive, extending from the first to the fifth metatarsal heads, and quite wide. After the sterile dressings are applied, the foot is put up in a plaster dressing extending to the knee.

11. **Arthroplasty of Interphalangeal Joints.**—Of the ten interphalangeal joints, in which Lord used attached flaps of ligament, fascia and fat, six have been done over and free fat and fascia used. More bone was removed and better results were secured. In a few of these, injections of yellow petrolatum were also resorted to later with some apparent benefit. A majority of the joints have been greatly improved, some to the extent that the patients were satisfied because fingers became usable, whereas before they were almost useless. Free full motion was obtained in none. Some joints, with a chronic arthritis, lingering and somewhat painful before operation, became painless afterward. Fingers that were so flexed and distorted as to prevent the wearing of gloves were made sufficiently straight and stable to permit ladies to indulge this feminine prerequisite of a finished toilette.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, 1915, XXIV, No. 4, pp. 747-1000

14 Indictment of Tonsil. B. C. Gile, Philadelphia.
15 Removal of Foreign Bodies From Upper Lobe Bronchus. C. Jackson, Pittsburgh.
16 Eye Adenoids and Their Relation to Throat Adenoids. Modification of Adenotonsillectomy Operation. T. E. Oertel, Augusta, Ga.
17 Vaccine Treatment of Suppurative Otitis Media. G. M. Coates, Philadelphia.
18 Case of Right Abducens Paralysis Following Acute Mastoiditis—Gradenigo's Syndrome. H. L. Myers, Norfolk, Va.
19 Case of Teratoma of Tonsillar Space Removed From Throat of Boy Two Days Old. W. C. Braislin, Brooklyn.
20 Complete Cleft Palate With Marelip. O. Smith, Portland, Me.
21 Chronic Purulent Otitis Media With Special Reference to Tuberculosis. W. C. Phillips, New York.
22 Vertigo of Labyrinthine Origin Following Chronic Suppurative Otitis Media With Cholesteatoma. F. P. Emerson, Boston.
23 Use of Quinin and Urea Hydrochlorid as Local Anesthetic in One Hundred and Forty-Eight Cases of Tonsillectomy. L. J. Burns, Philadelphia.

24 Case of Endothelioma of Trachea. C. Goodman, New York.
25 Temporosphenoidal Abscess With Unusual Complications. J. Leshure, New York.
26 Case of Multiple Abscess of Brain; Operation—Recovery. J. Guttman, New York.
27 Bacteriology of Acute Otitis Media and Mastoiditis and Their Complications; Blood Cultures. J. G. Dwyer, New York.
28 Case of Intense Vertigo Relieved by Puncture of Dura in Neighborhood of Internal Auditory Meatus. L. W. Dean, Iowa City, Iowa.
29 Theories Concerning Paracusis Willisii. G. M. McBean, Chicago.
30 Postoperative Antiseptic Treatment of Tonsillar Fossa. G. P. Marquis, Chicago.
31 Mastoid Operation Dependent on Pathology. C. F. Welty, San Francisco.

Archives of Pediatrics, New York

March, XXXIII, No. 3, pp. 161-240

32 Prolonged Use of Tubes Following Diphtheria; Report of Case. A. J. Bell, Cincinnati.
33 *Multiple Deaths in Newborn of One Family. C. Herrman, New York.
34 *Fever; Initial Sign of Tuberculous Infection in Infants; Report of Cases. M. S. Reuben, New York.
35 *Value of Luetin Reaction in Congenital Syphilis. M. B. Gordon, Brooklyn.
36 Symptomatology of Congenital Intestinal Obstructions. F. Van der Bogert, Schenectady.
37 Diagnosis of Appendicitis in Childhood. F. L. Wachenheim, New York.
38 Nursery Unit. F. E. Johnson, New York.

33. **Multiple Deaths in Newborn of One Family.**—Five of eight newborns reported on by Herrman were taken sick at about the same age, namely, from ten to twelve days, with the same symptoms, mild catarrhal manifestations in the upper respiratory tract; the disease ran the same course, and ended fatally in from five to six days in each. The labors were not difficult, the babies had no cyanosis or disturbances of breathing at birth. Some of the babies were born at home, some in the maternity ward. There is no reason to suppose that the hygienic conditions were at fault. At the time the last baby was in the maternity ward, there were no other cases of infection in the newborn. All the infants were breast-fed exclusively, none had any distinct digestive disturbance. As to the possibility of the mother's milk being toxic, two of the children, namely, the second and the fifth, received the breast milk for six months without presenting any disturbances, and the clinical picture was that of a descending respiratory infection, not that associated with "alimentary intoxication" or an anaphylactic reaction. In view of the fact that seven of eight children died of pneumonia, five during the first three weeks, Herrman feels justified in assuming an unusual susceptibility of the respiratory tract in these infants, and this susceptibility must have been congenital. The possibility of the mother acting as a "carrier" was considered, and cultures made from her throat showed a marked preponderance of streptococci; but as the blood cultures of the infant were sterile there is no definite evidence that the mother infected her infant.

34. **Fever, Initial Sign of Tuberculous Infection.**—This paper is based on a study of nine cases. Reuben says that fever is the first sign of tuberculous infection in infants. The fever is of sudden onset; at first high (seven to fourteen days), is remittent and gradually comes down by lysis, but not to normal, it continues at slightly above normal, 100 to 101 for twelve to twenty weeks, with periods of complete absence of fever; exacerbations (two to three) of high fever, of same type as that of onset usually occur. The tuberculin reaction in these cases usually becomes positive at the onset of fever or within a few days after the onset. At the onset of the infection no physical signs are present. Within the course of a few weeks (two to three) they all develop signs in the chest, which, in cases which get well, gradually disappear. The prognosis of tuberculous infection in infancy is more favorable than was formerly supposed; 30 to 35 per cent. of these infants survive the infection. From these facts Reuben concludes that the pathologic lesions, even in infancy, may be localized and completely healed. Of prolonged febrile conditions in infants 14 per cent. diagnosed as influenza give a positive Pirquet reaction. Reuben urges that the tuberculin reaction should be carried out on every infant who has an idiopathic fever and presents no physical signs.

35. **Value of Luetin Reaction in Congenital Syphilis.**—The luetin reaction was present in 81 per cent. of the cases of congenital syphilis studied by Gordon and was absent in all nonsyphilitic cases but one. He claims that this test is more adapted for pediatric work than the Wassermann. It is especially more so in dispensary work, in cases in which it sometimes is almost impossible to obtain permission from the parents to draw blood from a child.

Boston Medical and Surgical Journal

April 6, CLXXIV, No. 14, pp. 483-518

39 Practical Points in Prevention of Asiatic Cholera. A. J. McLaughlin, Boston.
40 Fermentative Diarrhea in Infants (Carbohydrate Form). L. W. Hill, Boston.
41 Industrial Medical Supervision. A. B. Emmons, 2d, Boston.
42 Truth About Smallpox and Vaccination. G. W. Gay, Boston.
43 Alcoholic as Seen in Court. V. V. Anderson, Boston.

Journal of Experimental Medicine, Baltimore

April, XXIII, No. 4, pp. 431-562

44 Klossiella Infection of Guinea-Pig. L. Pearce, New York.
45 Chemopathologic Studies With Compounds of Arsenic. Character and Distribution of Renal Injury Produced by Arsenicals as Indicated by Processes of Repair. L. Pearce and W. H. Brown, New York.
46 *Experiments With Poliomyelitis in Rabbit. M. J. Rosenau and L. C. Havens, Boston.
47 Feeding Experiments With Bacterium Pullorum. Toxicity of Infected Eggs. L. F. Rettger, T. G. Hull and W. S. Sturges, New Haven, Conn.
48 *Serum Changes and Cause of Death in Experimental Pancreatitis. W. Petersen, J. W. Jobling and A. A. Eggstein, Nashville, Tenn.
49 *Serum Changes Following Thyroparathyroidectomy. W. Petersen, J. W. Jobling and A. A. Eggstein, Nashville, Tenn.
50 *Disappearance of Dextrose From Blood After Intravenous Injection. I. S. Kleiner, New York.
51 *Function of Kidney When Deprived of Its Nerves. W. C. Quinby, Baltimore.
52 Method for Obtaining Suspensions of Living Cells from Fixed Tissues and for Plating Out of Individual Cells. P. Rous and F. S. Jones, New York.
53 *Pure Cultivation of Spirochaeta Icterohemorrhagia (Inada). T. Ito and H. Matsuzaki, Japan.

46. **Experiments with Poliomyelitis in Rabbit.**—The poliomyelitic virus obtained from an experimental monkey has been passed through eight generations in rabbits by Rosenau and Havens. It shows no signs of dying out. On the other hand, it gives no evidence of becoming more pathogenic to the species through successive passage. The period of incubation remains variable and the percentage of takes has not increased. All inoculations are by no means successful. The animals show great individual differences in susceptibility to the virus, as is evidenced by the fact that out of fifty-four rabbits inoculated, only twenty-two, or about 40 per cent. succumbed. At several points in the series of experiments it was thought that the strain had died out. As many as six rabbits have been inoculated one after the other before the virus would catch again. Several methods of inoculation have proved successful; thus the rabbits have succumbed as a result of introducing the virus directly into the brain, by injecting it into a peripheral nerve, or directly into the circulation, or by placing it on the uninjured nasal mucosa. The symptoms produced show more or less departure from the symptoms of poliomyelitis as seen in the spontaneous disease in man and in the experimental disease in the monkey. The period of incubation is variable and apparently does not depend on the method of inoculation. The virus shows no tendency to become fixed. The authors have found the virus to be filterable. The lesions, while definite and consistent throughout the series, lack the distinctive features of the pathologic picture of poliomyelitis in man and the monkey.

48. **Serum Changes in Experimental Pancreatitis.**—It is claimed by the authors that the serum changes observed during acute experimental pancreatitis indicate that the shock and death are due to an intoxication from protein split products, and not to an intoxication from pure tryptic ferment. When the pancreatitis is produced by the injection of an antiproteolytic substance (sodium oleate), the degree of intoxication bears no relation to the degree of tissue

destruction. The increase in serum antiferment apparently favors the recovery of the animal.

49. **Serum Changes Following Thyroparathyroidectomy.**—The authors found that in thyroparathyroidectomized dogs the onset of tetany bears no constant relation to the ferment-antiferment balance of the serum. The serum lipase titer remains at a low level throughout. A progressive increase in noncoagulable nitrogen and proteoses is observed in the serum following the removal of the glands. The amino nitrogen of the serum is usually increased at the time when tetany is most marked.

50. **Disappearance of Dextrose from Blood.**—As has been found by other investigators, Kleiner states, that when a large amount of dextrose is injected intravenously into a normal dog it disappears from the circulating blood in about ninety minutes after the end of the injection. Varying amounts (an average of 60 per cent.) are excreted in the urine. Even in nephrectomized animals the same quantity will leave the circulation in the same length of time as in normal animals. This phenomenon seems to be, at least to a great extent, independent of vital processes, since dextrose, after intravenous injection into dead animals is found to leave the blood rapidly. The phenomenon is independent of the important abdominal organs, for it also occurs in animals (living or dead) in which the aorta and inferior vena cava have been ligated near the diaphragm, thus abolishing most of the circulation posterior to the diaphragm. The fact that a considerable amount of the sugar passes from the circulation into the surrounding tissues was established by finding an increase in the carbohydrates of the muscle tissue. This was done in the case of the living anterior animals and in the whole and anterior dead animals. In most of these experiments there was also evidence of the formation of polysaccharids in the muscle tissue.

51. **Function of Kidney when Deprived of Its Nerves.**—By means of vascular suture Quinby found it possible to remove the dog's kidney from the body and later to restore it to its former position. Such a kidney is removed from the control of the nervous system, at least for a time. Examination of the function of a kidney so treated shows an initial period of overaction, as compared with that of the normal kidney. This is followed by balanced action. The more recent tests of renal function show that a single, reimplanted kidney is able to maintain normal life indefinitely. The results of these experiments, together with the evidence already at hand, suggest strongly that secretory nerves to the kidney do not exist.

53. **Cultivation of Spirochaeta Icterohemorrhagia.**—Pure cultures of the spirochetal causative agent of the disease known as Weil's disease, or febrile icterus, in Japan, have been obtained by Ito and Matsuzaki in a solid, a semisolid and a fluid medium. The spirochete thus isolated remains pathogenic for guinea-pigs for many generations. Up to the present time they have succeeded in cultivating three different strains. The spirochete is a facultative anaerobe. Blood serum from a patient once attacked by Weil's disease has a slight bactericidal action on this spirochete.

Journal-Lancet, Minneapolis

April 1, XXXVI, No. 7, pp. 183-213

54 *Autografts in Infected Fields. A. A. Law, Minneapolis.
55 Autointoxication; Possible Cause of Retrobulbar Neuritis; Report of Case. J. A. Hohf, Yankton, S. D.
56 Prone Position and Its Uses. M. M. Ghent, St. Paul.
57 Diagnosis of Syphilis. G. J. Thomas, Rochester, Minn.
58 Cross Eyes. How Shall We Care For Them? L. N. Grosvenor, Huron, S. D.

54. **Autografts in Infected Fields.**—On the basis of his clinical and experimental studies, Law claims that autogenous bone-grafts in infected fields, parallel and act much as do cases of osteomyelitis, that part of the graft survives and proliferates, that part is absorbed and part sequestrates, and that the graft is itself osteogenetic and is responsible for the formation of an involucrum and sequestrum. While the exhibition of autotransplants in aught but clean fields as a general surgical procedure is not orthodox, yet due to their recognized tolerance for mild infection, in instances of established immunity and in cases in which the need is great, their use is not only permissible but advisable.

Michigan State Medical Society Journal, Grand Rapids

April, XV, No. 4, pp. 163-218

59 Value and Importance of Maternity Hospitals. E. G. Zinke, Cincinnati.
60 *Primary and End-Results in Inoperable Cancer of Cervix Treated by Cautery Method. W. F. Seeley, Ann Arbor.
61 *Relation of Localized Headaches and Some Organic Eye Lesions to Intranasal Accessory Sinus Diseases. P. J. Livingstone, Detroit.
62 *Vincent's Angina. B. V. Colver, Battle Creek.
63 Choice of Time for Operating in Acute Appendicitis and Gallbladder Disease. J. H. Andries, Detroit.
64 History of Family Cataracts Through Four Generations. W. R. Parker, Ann Arbor.
65 Two Cases of Sarcoma of Breast. G. D. Sutton, Ann Arbor.
66 Case of Multiple Carcinoma With Involvement of Brain. A. M. Barrett, Ann Arbor.
67 Case of Gumma of Testis, Associated with Tabes. U. J. Wile, Ann Arbor.
68 Obstetrics and Gynecology Among Arabs. H. G. Van Vlack, Ann Arbor.
69 Occurrence of Epilepsy in Men of History. H. W. Shutter.

60. **Cancer of Cervix Treated by Cautery Method.**—Seeley claims that from 90 to 92 per cent. of his cases were primarily benefited, two vesicovaginal and one rectovaginal fistula failing to heal and one patient dying of peritonitis. The improvement in all cases was primarily a cessation or abatement of the most prominent symptoms, namely, foul discharge, hemorrhage and pain, with a corresponding improvement in the general condition of the patient. Eight of twenty-three patients, all with far advanced carcinoma of the cervix, are living and apparently in good health over periods of from seven months to two years and eight months, and of fifteen dead, eleven lived from four months to one year and eleven months. In six of eight patients who lived longer than one year after operation the operator was guided by the abdominal hand showing the value of laparotomy where permissible, to allow of more thorough application of the heat. The five years without recurrence usually given as a cure in postoperative cancer of the uterus has not elapsed in any case so that the number of cured cases cannot be estimated. Seeley advises that the cautery method should be used simply as a preliminary procedure to the radical operation in early cases, or reserved for the late, hopeless and otherwise inoperable conditions as an efficient palliative treatment.

61 and 62. Abstracted in THE JOURNAL, Sept. 25, 1915, pp. 1135 and 1136.

New Mexico Medical Journal, Las Cruces

March, XV, No. 6, pp. 203-242

70 Perineal Repair; Report of Case. B. L. Sulzbacher, Kansas City, Mo.
71 Artificial Feeding of Infants. F. H. Crail, East Las Vegas.
72 What New Mexico Needs Most in Tuberculosis Legislation. L. S. Peters, Albuquerque.

New York Medical Journal

April 1, CIII, No. 14, pp. 625-672

73 Duty to Mental Defectives of Present Generation. C. E. de M. Sajous, Philadelphia.
74 Colon Bacillus Infection of Bladder. R. T. Morris, New York.
75 Treatment of Persistent Occipitoposterior Positions. G. L. Brodhead, New York.
76 Medicine of Future. A. L. Benedict, Buffalo.
77 Forestry and Public Health. H. R. Hopkins, Buffalo.
78 Causes of Prolonged Disability From Fractures. S. B. Rosenzweig, New York.
79 Relapsing Fever in Serbia. J. Rudis-Jicinsky, Chicago.
80 Eye Case With Unusual Complications. F. P. Hoover, Jacksonville, Fla.
81 Sodium Bicarbonate. W. P. Herrick, New York.

Oklahoma State Medical Association Journal, Muskogee

April, IX, No. 4, pp. 79-107

82 Atypical Mastoiditis. L. C. Kuyrkendall, McAlester.
83 Constipation of Infants and Children. W. M. Taylor, Oklahoma City.
84 Importance of Early Diagnosis in Exophthalmic Goiter. L. F. Watson, Oklahoma City.

85 Paresis. F. M. Adams, Vinita.
86 Treatment of Burns. B. H. Brown, Muskogee.
87 Epidemiology of Pneumonia. H. D. King, New Orleans.

South Carolina Medical Association Journal, Greenville

March, XII, No. 3, pp. 63-93

88 Vaccines From Clinical Standpoint. T. M. DuBose, Jr., Columbia.
89 Intestinal Puzzle. G. A. Neuffer, Abbeville.
90 General Principles of Vaccine Therapy. E. Cooper, Columbia.
91 Specific Skin Reactions, Their Value and Significance. H. M. Smith, Columbia.
92 Some Experience With Twilight Sleep. W. J. Burdell, Lugoff.
93 Observations in Stomach Surgery. R. T. Ferguson, Gaffney.
94 Phenolsulphonephthalein Estimation of Renal Function in Thousand Cases. M. H. Wyman, Columbia.

Surgery, Gynecology and Obstetrics, Chicago

April, XXII, No. 4, pp. 379-506

95 *Pyloric Exclusion. R. Lewisohn, New York.
96 *End-Results of Fourteen Operations for Perforated Gastric and Duodenal Ulcers. C. L. Gibson, New York.
97 *Trophic Element in Origin of Gastric Ulcer. L. Durante, Rochester, Minn.
98 *Metastatic Carcinoma of Ovaries. W. S. Stone, New York.
99 Anterior Transperitoneal Hysterotomy. J. B. Deaver, Philadelphia.
100 Roentgen Treatment of Uterine Carcinoma. J. T. Case, Battle Creek, Mich.
101 Radium in Treatment of Carcinoma of Cervix Uteri. C. J. Miller, New Orleans.
102 Prophylaxis of Uterine Cancer. T. J. Watkins, Chicago.
103 Postoperative Tetanus. K. Speed, Chicago.
104 Anthrax; Report of Cases. J. S. Ullman, Natchez, Miss.
105 Renorenal Reflex Pain; Report of Case. H. A. Fowler, Washington.
106 *Thymus and Its Tumors; Report of Three Cases of Thymoma (Lymphosarcoma). J. Ewing, New York.
107 Physiologic Method of Tendon Transplantation. L. Mayer, New York.
108 Rectal Drainage of Appendiceal Pelvic Abscess; Report of Cases. V. L. Schrager, Chicago.
109 *Splanchnoptosis; New Operation for Gastropexy and Cystopexy. J. A. Wall, Santiago, Chile.
110 *Unusual Case of Fracture of Olecranon Process. C. W. Perkins, New York.
111 Roentgenologic Diagnosis of Prostatic Tuberculosis and Prostatic Stones. M. Reichmann, Chicago.
112 Combination Needle Holder and Ligature Scissors. L. F. Stewart, Clearfield, Pa.
113 Placenta Praevia Treated With Pituitary Extract; Report of Cases. P. Gallagher, El Paso, Tex., and H. Gallagher, Los Angeles.
114 Treatment of Femoral Aneurysm. F. G. Dyas, Chicago.

95. **Pyloric Exclusion.**—Lewisohn has devised a modification of Biondi's method for which he claims permanent and absolute occlusion of the pylorus. This modified method is performed in the following manner: Gastro-enterostomy. The gastrohepatic ligament is ligated in the pyloric region, which enables us to deliver the pylorus in front of the abdominal wall. The transverse incision through the seromuscularis is then carried around the pylorus. The muscularis is peeled away from the mucosa which is thus exposed intact for about one inch. The mucosal tube is ligated above and below with a silk or Pagenstecher ligature cut in between the ligatures and the stumps carbolized. Then the stumps are buried in the stomach end and in the duodenal end respectively.

96. **Gastric and Duodenal Ulcers; Operation, End-Results.**—One of Gibson's patients died from acute general peritonitis two hours after operation. The case was considered hopeless from the start. The remaining thirteen patients have remained under observation. In all the cases every patient on reexamination has shown an improvement in general health and relief or cure of previous gastric symptoms. Twelve of the cases have had bismuth pictures of the stomach, and the findings are shown in the accompanying photographs. Seven cases show no gastric retention at all. Two cases show only a negligible trace. Of the three other cases only one shows a considerable amount and the cause of this is quite likely to be marked ptosis of the stomach. One case shows a slight retention, notwithstanding a functionating gastro-enterostomy (the only one done in this series). In none of these cases is there any evidence, objective or presumptive, of any appreciable stenosis of the pylorus or duodenum. Ten patients have had gastric analyses. In two cases the gastric analyses could not be carried out because the Ewald meal was passed so quickly. In three cases the gastric analyses show acidity to be approximately normal; in three cases there was well marked hyperacidity; in two cases the acidity was less than normal. Gibson points out that patients operated on within a few hours, say two to four, should not have a mortality much in excess of 5 per cent. As a routine, only the simplest, speediest but sufficiently efficient operative procedure should be employed. Such operations as resection of the ulcer and gastro-enterostomy should be the exception and performed only under very distinct indications, chiefly to overcome definite stenosis produced by closure of the perforation. Operations, such as resection or gastro-enterostomy, intended to bring about the cure of the ulcer, are really unnecessary, as a careful study of the cases treated by the ordinary measures shows a tendency to spontaneous cure of the ulcer as a result of the perforation.

97. **Trophic Element in Origin of Gastric Ulcer.**—Durante states that ulcer may be produced by any agent capable of damaging the sympathetic nervous system as it is on the integrity of this system, which controls circulation, secretion and profound sensibility in the stomach, that the very life of the gastric cell may be said to depend. The theory of "trophic ulcer" must be taken in this sense. The results obtained after resection (75 experiments) of the right and left splanchnic nerves are detailed.

98. **Metastatic Carcinoma of Ovaries.**—From his review of the literature and personal observations, Stone feels justified in directing attention to the following points regarding the subject of metastatic carcinoma of the ovary: Malignant tumors of the ovaries, even when of such size as to control the clinical course of the disease, are frequently enough secondary to growths in other organs, especially the stomach and the breast, as always to justify a suspicion of their secondary nature, before any method of treatment is advised, or a probable prognosis is defined. The route of metastasis is rarely a chance distribution of embolic transportation through the blood or lymphatic vessels, but occurs, either by a direct extension through the retroperitoneal lymph nodes by permeation or retrograde transportation, or by peritoneal implantation. Peritoneal implantation is undoubtedly a more frequent route than has previously been supposed; and next to the liver, the ovaries, especially during the period of their functional activity, are more often involved in this way than any of the other intraperitoneal organs, because of their circulatory changes, the traumatism of their surface from ovulation, and the proximity to the pouch of Douglas, which is apparently more frequently the site of peritoneal implantation of cancer cells than any of the other peritoneal surfaces.

106. **Thymus and Its Tumors.**—Briefly, the cases reported by Ewing are as follows: 1. Thymoma with extensions throughout neck, mediastinum and axillae. Acute febrile course, duration seven months. Suppuration and necrosis. Death from asphyxia. No distant metastases. Tumor composed of round, cubical and cylindrical reticulum cells. 2. Perforating sternal tumor originating in the thymus. Enlargement of nodes in both axillae and behind clavicle. Duration two years, active course four months. Regression under Roentgen-ray treatment. Structure of tumor, giant cell thymoma. 3. Slowly progressive thymoma of granulomatous type, suggesting Hodgkin's disease, in a subject of 50 years. Duration two years. Large, very dense circumscribed mediastinal tumor. No metastases. Structure of cubical and polyhedral reticulum cells, with Hassall's corpuscles and many peculiar giant cells.

109. **New Operation for Splanchnoptosis.**—The procedure emphasized by Wall consists in passing three or four sutures from deep in the anterior wall of the stomach up through and fixing them to the peritoneum and fascia in the upper part of the median incision. In other words it is a method similar to that used by Duret and Rovsing except that it has the advantage of allowing folding in two directions, longitudinally and transversely.

110. **Case of Fracture of Olecranon Process.**—The fracture of the olecranon in Perkin's case was of the variety in which

all the fragments were broken into small pieces. Some of the fragments were so small that it seemed best to advise their removal and adjust the remaining large fragment of the olecranon in place as near as possible to its original position. However, it was decided to wait and see what nature would do, and if an operation were necessary it could be done later. The patient was anesthetized, the arm put in extension, and an effort made to align the fragments and place the remaining portion of the olecranon in as near as possible its original position over the trochlear surface of the lower end of the humerus. Adhesive strips and a gauze pad together with a wire splint were finally placed on the elbow. In ten days' time the splint was removed and the arm put in the first degree of flexion. Passive motion was instituted at the same time. In seven weeks' time the patient made an almost perfect recovery as regards function of the joint.

Tennessee State Medical Association Journal, Nashville

April, VIII, No. 12, pp. 505-538

115 Rôle of Seminal Vesicle in Gonorrheal Rheumatism. C. F. Anderson, Nashville.
116 Anoci-Association. C. N. Cowden, Nashville.
117 Gynecologic Surgery. E. H. Baird, Dyersburg.
118 Some Experiences of Country Physician. J. T. Graham, Mulberry.
119 Responsibility of Preventable Deaths—To Whose Account Shall Be Charged? J. A. LaRue, Pulaski.

Texas State Journal of Medicine, Fort Worth

March, XI, No. 11, pp. 573-622

120 Nephritis Problem in Medicine and Life Insurance. L. Sexton, New Orleans.
121 Renal Function Tests. J. R. Lehmann, Dallas
122 Diagnosis and Treatment of Infection of Urinary Tract. W. W. Cobb, San Angelo.
123 Dental View of Present Treatment of Pyorrhea Alveolaris. W. O. Talbot, Fort Worth.
124 Streptococcus Viridans and Its Relation to Arthritis Deformans and Endocarditis. D. Spangler, Sherman.
125 Some Eye Complications Resulting From Diseases of Nose and Its Accessory Sinuses. C. R. Harisook, Wichita Falls.
126 Ocular Symptoms of Organic Disease; Their Importance in Damage Suits. L. H. Lanier, Texarkana.
127 Subglottic Stricture. R. W. Moore, Fort Worth.
128 Case of Strongyloides Intestinalis. R. C. Whiddon, Gainesville.
129 Uncinaria History Schedules of Two Patients Treated With Thymol. A. J. Fechtig and J. E. Walker, Wilmington, N. C.

United States Naval Medical Bulletin, Washington

April, X, No. 2, pp. 191-400

130 General Consideration of Present Status of Vesical Papilloma. L. C. Lehr, U. S. Navy.
131 Suggested Use of Combined Table of Occupational Distribution of Physical Disability. C. N. Fiske, U. S. Navy.
132 Exclusion of Mentally Unfit From Military Services. R. Sheehan, U. S. Navy.
133 Greater Field of Activity for Medical Officers of Navy Yards. N. J. Blackwood and W. H. Bell, U. S. Navy.
134 Hospital Steward; Concerning His Qualifications—Personal, Educational and Professional. W. E. Eaton, U. S. Navy.
135 Studies Pertaining to Light on Shipboard. T. W. Richards, U. S. Navy.
136 Fumigation of U. S. Ship Tennessee by Cyanid Method. N. Roberts, U. S. P. H. Service; G. E. Robertson and A. E. Beddoe, U. S. Navy.
137 New Hospital Corps Forms. W. E. Eaton, U. S. Navy.
138 Diagnosis of Syphilis by Wassermann Reaction. A. H. Allen, U. S. Navy.
139 Apparatus for Filling Vaccine Ampules. R. G. Davis, U. S. Navy.
140 Methods of Preventing Alteration of Tincture of Iodin in Military Surgery. J. A. Biello, U. S. Navy.
141 Two Cases of Intussusception as Sequel to Whooping Cough. C. W. Depping, U. S. Navy.
142 Treatment of Fractured Femur by Means of Steinmann Nail. C. W. Depping, U. S. Navy.
143 Unusual Case of Herpes Zoster (Zoster Nuchae et Brachialis). W. E. Eaton, U. S. Navy.
144 Case of Hypernephroma. E. H. H. Old and R. H. Laning, U. S. Navy.
145 Surgical Conditions of Kidney. C. G. Smith, U. S. Navy.

West Virginia Medical Journal, Huntington

April, X, No. 10, pp. 327-362

146 Diagnosis and Treatment of Renal Tuberculosis. E. O. Smith, Cincinnati.
147 What Medical Society Means to Medical Profession and What Should Be Attitude of Physician to Society. C. O. Henry, Fairmont.
148 Report of Patient With Pressure on Spinal Cord. I. J. Spear, Baltimore.
149 Exophthalmic Goiter, Necessity of Recognition and Treatment of Rudimentary Cases. N. P. Yeardley, Parkersburg.
150 Case of Aneurysmal Varix. T. Bess, Hinton.
151 Diagnosis of Case of Tremor. T. A. Williams, Washington, D. C.
152 Albuminuria of Pregnancy: Report of Eight Cases. A. H. Hoge, Bluefield.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

March, XX, No. 10, pp. 321-356

1 Roentgenography of Chest in Children. W. J. S. Bythell.
2 Organization of Roentgen Ray Department of General Hospital in France. A. H. Pirie.
3 Convenient Radium Emanation Table for Clinical Work. W. C. Stevenson.
4 Report of Calculus in Fossa Navicularis Urethra. J. D. Morgan.

British Medical Journal, London

March 18, I, No. 2881, pp. 401-436

5 Importance of General Principles in Military Surgery. G. G. Turner.
6 *Protozoan Infections Occurring at King George Hospital. H. M. Woodcock and W. J. Penfold.
7 Spirochetes and Their Granule Phase. H. B. Fantham.
8 Relation Between Terminal Spined and Lateral Spined Eggs of Bilharzia. R. T. Leiper.
9 *Iodin in Tetanus. A. T. MacConkey and S. S. Zilva.
10 *Three Cases of Abdominal Growths Presenting Very Unusual Characters. C. A. Morton.
11 *Bloodless Operation for Hemorrhoids and Prolapsus Ani. F. M. Bell.

6. **Protozoan Infections.**—Of 384 cases examined by Woodcock and Penfold for protozoan parasites, 98 cases have shown one, sometimes more than one protozoan; the proportion of positives is 25.5 per cent. of the whole. *E. coli* was the commonest of the parasites enumerated, occurring in 14.8 per cent. of the total number of cases and in more than half of the total positives. Lamblia has been the next most frequent, but this form was found in only 5.7 per cent. of the total number of cases. The other flagellates have been less frequent. In 10 cases in which isospora (coccidia) occurred the number of the parasites in the feces was scanty, and there was no sign of pathogenicity in connection with their presence.

9. **Iodin in Tetanus.**—Experiments on guinea-pigs have forced MacConkey and Zilva to come to the conclusion that iodin injected subcutaneously has no effect on tetanus toxin which has been also injected subcutaneously in a different place. One cannot, therefore, hope to influence favorably the course of an attack of tetanus by injections of iodin alone, nor does iodin appear to have any effect in enhancing the power of serum. It would seem, then, that iodin can only be of use when applied to the infected focus, so that it can come into direct contact with the toxin before absorption.

10. **Abdominal Growths of Unusual Character.**—The cases cited by Morton are as follows: 1. Tumor composed of many hydatid cysts growing within the abdomen, and protruding into an umbilical hernia so as to form large pendulous growth. 2. Sarcoma of small intestine causing recurrent attacks of obstruction. 3. Malignant growth of the colon causing obstruction and associated with phthisis in a young man of 21.

11. **Bloodless Operation for Hemorrhoids and Prolapsus Ani.**—The operation described by Bell is intended for cases in which four or more large piles occur or in the milder grades of prolapsus ani. In other words, it may be used in any case in which Whitehead's operation is indicated, but has the advantages of being almost bloodless and less liable to complications. The usual preparation is given. The instruments required are one large slightly curved clamp, two Hagedorn needles, one semicurved needle, one pair of scissors curved on the flat, tissue forceps, thermocautery and No 4 silk for suture. After dilatation of the sphincter, a long silk suture is passed through at the junction of the skin and mucous membrane in the midperineal line and is left untied and used as a retractor; two similar sutures are inserted on

either side of the anus, so that when traction is made on all three extruded mucous membrane is converted into a triangle. Each side of the triangle is clamped in order to mark the area for excision. This area is limited externally by the junction of the skin and mucous membrane, and extends internally to within one-eighth inch of the required depth. The two Hagedorn needles are now threaded at either end of a continuous silk suture. The first stitch, which may be inserted before removal of the clamp, is placed at the apex of the triangle, and is tied at the center of the thread. The clamp being removed the two needles are passed through from opposite sides at the same point—a cobbler's stitch. Each stitch is pulled taut but not tied. The suture is continued in this manner at one-fourth inch intervals until the lower end of this side of the triangle is reached, where it is tied. The redundant tissue is clipped away at a distance of one sixteenth of an inch from the line of suture. The narrow ridge thus left is lightly touched with the thermocautery. The other two sides of the triangle are similarly treated, and the traction sutures are removed. In a series of twenty-one cases this operation has given satisfactory results.

Journal of Tropical Medicine and Hygiene, London

March 15, XIX, No. 6, pp. 65-76

12 Meteorology of Malaria. M. D. O'Connell.
13 Technic of Intramuscular Injection of Salvarsan. W. M. McDonald.

Lancet, London

March 18, I, No. 4829, pp. 601-656

14 *Pituitary Fossa and Surgical Methods of Approach to It. V. Z. Cope.
15 Study of Shell Shock. C. S. Myers.
16 Treatment of Turkish Wounded From Suez Canal. F. C. Madden.
17 *Treatment of Hemorrhoids by Injection. A. S. Morley.
18 Prognosis in Sympathetic Ophthalmia. P. Dunn.

14. Surgical Methods of Approach to Pituitary Fossa.—In Cope's opinion there are two operations which have proved fairly satisfactory for approaching the pituitary fossa, the Hirsch-Cushing submucous nasal method, and the fronto-orbital method of Frazier. Though it is not possible yet to decide finally between these, the opinion is expressed that the fronto-orbital route is more suitable in the great majority of the cases. In the three cases which Cope operated on this method was adopted with success. All three of these patients were almost blind before brought for operation. In the first case a portion of an endothelioma was removed and the general condition improved, though the sight did not improve. The third patient obtained great improvement of vision after a cyst was evacuated. The second case proved to be one of syphilitic meningitis, and though the patient said he was a little better after the operation there was no obvious improvement in his condition. Now that the mortality of the operation has diminished, Cope states that surgeons can more readily urge that patients with oncoming blindness due to pressure on the chiasma should be treated by operation more early than is now the case.

17. Hemorrhoids Treated by Injection.—The treatment employed by Morley consists in the injection into each internal pile of a few drops of phenol and glycerin.

	gm. or c.c.	
Phenol	3	16 gr. xlviii
Glycerin	8	dr. ii
Aquae destillat	8	dr. ii

This is a 20 per cent. solution of phenol. The amount to be injected into each pile varies from 2 to 6 minims of this solution. Great care must be taken not to inject too much, otherwise it is possible to produce slight sloughing; this is not a serious matter in itself, but it causes decided pain. The injection can easily be repeated if necessary. Morley injects all the piles at one sitting whenever it is possible to do so. Sometimes this is not practicable, because after injection a large pile sometimes swells so rapidly that the smaller piles are completely hidden for the time.

Sei-I-Kwai Medical Journal, Tokyo

March, XXXV, No. 3, pp. 11-16

19 Tubercular Peritonitis and Its Surgical Treatment (to be continued). Y. Takaki.

Bulletin de l'Académie de Médecine, Paris

March 7, LXXV, No. 10, pp. 265-286

20 *Calcium Carbid or Silver Nitrate and Zinc in Treatment of Chancroid and Similar Lesions. (Traitement du chancre mou par la poudre de carbure de calcium et par une poudre argentico-zincée.) F. Balzer.
21 Technic for Fitting Artificial Eye After Wounds in War. (Notes sur la prothèse oculaire.) G. Valois and J. Rouveix.
22 Localization and Extraction of Projectiles in the Lungs. (L'extraction opératoire des projectiles intrapulmonaires, superficiels et profounds, sous l'écran, par un procédé simple, rapide et sur.) P. de la Villeon.
23 *Condensed Milk in Rice Water in Treatment of Trench Enteritis, as Well as of Enteritis in Infants. (Nouveau traitement des entérites des tranchées par le lait condensé dilué dans l'eau de riz.) Lassablière.
24 Protection Afforded Soldiers by Metal Caps. (Rôle protecteur du casque métallique de guerre.) B. Roussy.

20. Treatment of Chancroid.—Balzer spreads pulverized calcium carbid over the surface of the chancroid in a thin layer for a single application, following it with iodoform or other mild powder. It acts effectually but less brutally than zinc chlorid or other caustics, and he has found it useful also on ulcerating lupus patches. A combination which has also proved effectual, and rendered iodoform unnecessary, is a mixture of zinc filings in a 1 per cent. solution of silver nitrate to form a paste which is applied to the chancroid, and modifies it by the zinc nitrate generated and the reduced silver. He describes a method by which this combination is obtained in the form of a dry powder. In conclusion he mentions that there is a general increase in the prevalence of venereal diseases, but the proportional increase is greater for syphilis than for gonorrhea or chancroid.

23. Rice Water for Trench Enteritis.—Lassablière remarks that the present war has seen a return to hand grenades, casques and other features of war that had been long discarded, and rice water has been likewise restored to a prominent place in the management of bowel trouble. It has been modernized, however, by addition of condensed milk, and this combination is proving extremely effectual and convenient for all concerned. In 51 per cent. of 37 men put on the condensed milk-rice water diet the diarrhea was completely conquered in from two to four days, and the blood disappeared from the stools in one day in 12; in two days in 8, and by the fourth day in all but 5. The condensed milk was given with four parts official rice water, to a total of one or two liters a day. The stay in the hospital was shorter by half than with the other usual measures.

Paris Médical

March 11, VI, No. 11, pp. 273-288

25 Loss of Power to Recognize Shape of Objects by Touch — Astereognosis—After Wounds of Parietal Lobe. M. Villaret and Maystre.
26 Technic for Resection of Upper End of Humerus. (La traversée de la région deltoidienne dans la trépanation et la résection de l'extrémité supérieure de l'humérus.) M. Soubeyran.
27 Foreign Body Weighing 56 Grams in Orbit. (Volumineux corps étranger de l'orbite.) A. Dauthuile.

March 18, No. 12, pp. 289-304

28 Electric Stop Watch Tests of the Senses in Examining Candidates for the Aviation Corps. (Mesure des réactions psychomotrices des candidats à l'aviation.) J. Camus and Nepper.
29 Apparatus to Overcome Radial Paralysis. Mouchet and Anceau.
30 Multiple Postdiphtheric Paralyses in Adult; Recovery Under Antitoxin. E. Ginestous and Turlais.
31 Early Amputation for Destructive Wounds. (L'amputation précoce dans les grands délabrements des membres.) N. Lapeyre.
32 Intensive Radiotherapy Concentrated on Wounded Nerve. (Note sur la radiothérapie des blessures des troncs nerveux.) A. Hesnard.

Presse Médicale, Paris

March 13, XXIV, No. 15, pp. 113-120

33 Artificial Legs; American Models. (Prothèse de jambe. Etude des modèles américains.) Ducroquet.
34 Modified Physiologic Serum for Dressing Wounds. (Sérum physiologique chloré pour le traitement des plaies.) P. Cruet and Rousseau.

March 16, No. 16, pp. 121-128

35 Hemiplegia From Gunshot or Shell Wounds. (Hemiplégies par blessures de guerre. Diagnostic topographique du siège des lésions.) G. Guillain and A. Barré.
36 Metal Casques for the Trenches. (Rôle protecteur du casque métallique de guerre.) B. Roussy.

37 Operative Technic for Wounds of the Skull. (Quelques points de technique de la craniectomie pour plaies cranio-cérébrales par projectiles de guerre.) Ehrenpreis.

Berliner klinische Wochenschrift

March 6, LIII, No. 10, pp. 241-268

38 *Treatment of Bullous Eruption on the Hands: Cheiropompholyx. (Enstehung und Beseitigung des Juckens. F. Cheiropompholyx.) P. G. Unna.

39 Treatment of Ulceration of the Skin in Malignant Disease. (Ueber die Behandlung von Ulcerationen der Haut bei Krebskranken mit Isoamylhydrocuprein.) J. Tugendreich.

40 *Deforming Arthritis and Its Connection With Trauma. (Ueber die Arthritis deformans und ihre Beurteilung nach Unfällen.) E. Senger.

41 Toxic Action of Fumes From Crude Nitric Acid at a Fire. (Massenvergiftung durch Einatmen salpetrigsauer Dämpfe—Nitritintoxikationen.) J. Zadek.

42 *Enteritis in Measles. (Enteritis bei Morbilli.) K. Secher (Copenhagen).

43 Cortical Sensory Disturbances of Spinosegmental Type. W. Seiffer.

38. **Treatment of Cheiropompholyx.**—Unna advises to open every vesicle in warm soapy water. The itching subsides at once, and he then paints the region with an alcoholic disinfectant which works its way better than water or fat into the crevices of the skin. He prefers for this a mixture of 1 part silver nitrate in 20 parts spirit of nitrous ether, kept in dark colored glass. If the vesicles are large, he shaves off the top with a razor. He relates that he has found a special bacillus in these vesicles. This affection, first described by Fox and Hutchinson, is the pure type of chemotaxis inflammation, and there is none of the redness or paralysis of vessels which accompany ordinary inflammation.

40. **Deforming Arthritis and Trauma.**—Senger remarks that as his experience with industrial accidents has increased, many of his ideas have become modified. In regard to deforming arthritis in particular, the prevailing view that there is little chance of a cure has been proved erroneous in his practice, and he here relates a number of instances. Deforming arthritis is curable in the majority of cases, at least to the extent of regaining the earning capacity. He defines it as a slow and gradual swelling of the joint, its functional use impaired, and roentgenoscopy showing the surface of the bone rough and uneven, and proliferation of bone tissue, with atrophy of the bone sooner or later. With roentgenoscopy we are able now to recognize it in an earlier stage, and as syphilis is often the unsuspected cause, we can ensure a prompt and complete cure in all in this group. Such patients have usually been put through various courses of other kinds of treatment, before any one thinks of the Wassermann reaction. In one case of this kind a chronic swelling of the shoulder in a girl of 15 had been attributed to a blow, but a history of inherited syphilis pointed the way to effectual treatment. Even when the arthritis is the result of traumatic injury, the joint may recuperate and parts be trained to vicarious functioning with almost complete recovery of the earning capacity. In any event, cases of deforming arthritis of traumatic or other cause should be kept under surveillance, as later examination may disclose marked improvement. Examining physicians as a rule are so convinced of the hopeless nature of deforming arthritis that they do not take the trouble to reexamine with the Roentgen rays. Senger cites a recent instance of this where a man of 44 had fallen on his back and was receiving a 20 per cent. pension for the resulting deforming arthritis. Three physicians in the following five years confirmed the incapacity, but his employer says that when the man is under the influence of liquor there is no deformity, and he is able to carry weights up to 200 pounds.

42. **Enteritis with Measles.**—Secher states that an institutional epidemic of measles in small children was accompanied by enteritis in thirteen of the thirty-one affected. Everything seemed to indicate that the enteritis was the result of the localization of the disease in the bowels. In seven the enteritis was quite severe, and two of the children died. One little girl of 4 developed enteritis along with the other children but had no signs of the measles otherwise. The microscopic findings in the intestine in one of the fatal cases is shown. The bacteriologic findings were negative.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 4, XLVI, No. 10, pp. 289-320

44 Experiments Showing Action of Swiss Bullet. (Untersuchungen über die Wirkungen des schweizerischen Spitzgeschosses.) W. Lanz. Concluded in No. 11.

45 Occupational Changes in the Hair. (Ueber Haarveränderung bei Munitions- und Kupferarbeitern.—Ein Fall von Konditorerkrankung.) L. Merian.

March 11, No. 11, pp. 321-352

46 Experiences at a Field Hospital. (Kriegschirurgische Erfahrungen aus einem Rotkreuzspital in Lyon.) C. A. Pettavel. Continued.

Deutsche medizinische Wochenschrift, Berlin

March 2, XLII, No. 9, pp. 245-276

47 *Bronchitis, Pneumonia and Pleurisy in Infants. (Behandlung der akuten Katarrhe der tieferen Luftwege, der Lungenentzündungen und Brustfellentzündung bei den Säuglingen.) E. Peiper.

48 Hospital Experiences With Internal Diseases in Soldiers. (Erfahrungen aus einem Heimatslazarett für innere Erkrankungen.) L. Michaelis. Concluded in No. 10.

49 Tetragenus Sepsis After Typhoid; Three Cases; Recovery. A. Welz and E. Kalle.

50 Roentgen Localization of Projectiles. (Zur genauen Lokalisation von Fremdkörpern mittels Röntgenstrahlen.) Hammes and Schoepf; (Einfache Vorrichtung zur Tiefenbestimmung von Fremdkörpern nach Fürstenau.) O. Langemak and W. Beyer.

51 *Hereditary Diabetes. (Zur erblichen Diabetes.) K. A. Heiberg (Copenhagen).

52 Broadening of Sphere of Public Health Work. (Die Bevölkerungsfrage.) K. Richter.

53 The Attitude of the Physician in Respect to Birth Control. (Zur Stellung des Arztes gegenüber der Geburtenbeschränkung.) M. Marcuse.

47. **Pneumonia and Pleurisy in Infants.**—Peiper remarks that the infectious nature of all affections of the trachea, bronchi and lungs in young infants is illustrated particularly by the experiences in institutions. One case inevitably entails others, unless extreme measures for isolation are adopted. Attempts to "toughen" the children, drafts while bathing, damp rooms, are liable to have a predisposing influence, but far more important than this is a substandard constitution, and especially the exudative diathesis or a tendency to rachitis. Teething has absolutely no etiologic connection with bronchial affections. With acute bronchitis, pneumonia or pleurisy, the room must be kept at an even temperature of 18 or 20 C. (64 to 68 F.), the air kept moist with steam or by hanging up wet sheets. If feverish, the child must be kept in bed, changing its position frequently, taking it up several times a day and carrying it around, letting it lie at times on its stomach, to prevent hypostasis. The child should be given a warm bath at 33 C. (91.4 F.) daily, concluding with a dash of cool water; the gasps which this induces promote lung functioning. With febrile bronchitis, cool packs may be indicated every two hours or oftener with high fever. They reduce the fever, promote expectoration as the child takes deep breaths, and serve for revulsion to the skin. Of course they are indicated only when the child is vigorous, with good heart action; otherwise tepid packs or dry heat. For the latter he smears oiled silk with warm oil and binds it around the chest with flannel. This is useful at night as it does not grow chilly. If there is great secretion of phlegm, ipecac or other expectorants may be needed, but otherwise hydrotherapeutic measures take the place of medicine. If the condition grows worse, prompt revulsion is necessary to relieve the congestion in the lungs, and a mustard pack usually answers the purpose, but strict surveillance is imperative for fear of collapse. The hyperemia of the skin relieves the lungs and the child breathes more freely and the pulse grows stronger. If there is no decided reaction and the condition persists grave, venesection may still help. He draws 50 or 100 c.c. of blood, or two or three leeches or wet cupping can be applied to the thorax. Schultze's swinging or artificial respiration may aid in throwing off mucus. Emetics cannot be used if the heart is weak, but are often useful early in the disease. They must be given in adequate doses to induce vomiting or they do no good or merely start diarrhea. The thirst should be stilled, outside of mealtimes, with tea sweetened with saccharin. Caffein and camphor must be used as needed, and possibly inhalation of oxygen. Puncture must not be delayed if signs of empyema develop, as pyemia is particularly liable to occur in infants. The prognosis is graver, the younger the child.

The differential diagnosis between infiltration and effusion may be difficult in an infant's chest, but exploratory puncture solves the question. It is harmless, and to omit it, when there are symptoms of pleural involvement, he regards as actual malpractice. The favorable experiences with simple trocar puncture commend it unreservedly in all early cases of empyema in infants. The constant oversight required justifies removal to a children's hospital.

51. **Inherited Diabetes.**—Heiberg reports the details of a new family example of inherited diabetes. A brother and sister died of diabetes at the ages of 15 and 42, and their father and his father had also died of diabetes. He examined the pancreas of the sister, who had died in coma after twelve years of symptoms of diabetes. Thirty-three islands were found in forty-nine specimens examined, a number not materially less than those encountered in other cases without this hereditary stamp. He has previously reported a family in which five of thirteen brothers and sisters developed diabetes late in life. In another family four of eight adult brothers and sisters, the mother and two of her brothers and also her father developed diabetes. His study of these cases does not indicate that there is any essential difference between the anatomic findings in the inherited and the noninherited types.

Medizinische Klinik, Berlin

February 27, XII, No. 9, pp. 227-252

54 *Injury of the Eyes From Methyl Alcohol Poisoning. (Die Schädigung des Auges bei Vergiftung durch Methylalkohol.) G. V. A. Birch-Hirschfeld.

55 Analysis of Shock From Shell Explosion. (Zur klinischen Analyse der Granatschockwirkung.) J. H. Schultz and R. Meyer.

56 Cavities in Callus as Factor in Healing of Suppuration. (Die Callusläcke, ihre Formen und ihre Bedeutung für die Heilung der chronischen Knocheneiterungen.) M. Haudek.

57 Modified Technic for Differential Pressure Procedures. (Zur Druckdifferenzfrage.) W. Jehn.

58 Mushroom Poisoning. E. Lyon. Concluded in No. 10.

59 Experiences With Typhus. (Bemerkungen über Flecktyphus.) A. v. Torday.

60 Steam Unlousing. (Eine leicht herstellbare Entlausungsanlage zur Abtötung der Kleiderläuse durch überhitzten Dampf.) H. A. Vago.

March 5, No. 10, pp. 253-280

61 *Objective Tests for Nervous Heart Disturbances. (Zur Diagnose nervöser, insbes. thyreogener Herzbeschwerden Heeresangehöriger mittels der Adrenalin-Augenprobe und der Lymphocytenauszahlung.) H. Curschmann.

62 Experiences With Typhus. (Epidemiologische und klinische Erfahrungen bei Fleckfieber in Ostanatolien.) P. Neukirch and T. Zlocisti.

63 *Warning Symptoms of Cerebral Hemorrhage. (Prodromalsymptome der Hirnhämorrhagie.) H. Kisch.

64 Treatment of Abdominal Wounds in War. (Behandlung der Bauchverletzungen im Stellungskriege.) M. Strauss.

65 Device to Correct Muscular Talipes Equinus. (Postativer Apparat zur Behandlung der myogenen Spitzfusses.) A. Bum.

66 Necropsy Findings With Mushroom Poisoning. (Zur Kenntnis der Sektionsbefunde bei Pilzvergiftungen.) E. Lyon. Commenced in No. 9.

67 *Deficiency Nodular Skin Affection. (Noch einmal die Blutknotchenkrankheit.) S. v. Waldheim.

54. **Injury of the Eyes from Wood Alcohol.**—Birch-Hirschfeld says that quite a number of cases of methyl alcohol poisoning have occurred recently in soldiers, and not infrequently it has entailed severe and permanent injury of the eyesight. He has compiled a total of 235 cases, not including those that terminated fatally before the eyes were examined. He refers to the 163 cases of poisoning from methyl alcohol at the Berlin municipal lodging house three years ago, when 72 died and 4 were left permanently blind. This experience is recalled to show the difficulty of differentiating the trouble, as the symptoms were ascribed to meat poisoning at first. A number of lives would have been saved if the true cause had been suspected earlier. He reports 2 cases of blindness from this cause he has recently encountered, in one case proving permanent. In the other case vision improved to 9/18 and the fundus findings grew normal. Patillo has described 2 cases in which blindness came on four or fourteen days after varnishing the inside of beer casks with varnish dissolved in methyl alcohol. Inhalation of the fumes was evidently responsible in these cases, and Hirschfeld thinks this was a factor in the cases attributed by Wood and Butler to absorption through the skin. The symptoms do not develop until after several hours or days, and then involve the digestive apparatus, nausea, dizziness, vomiting and headache, progressing rapidly to delirium and convulsions. Usually vision becomes impaired before the general symptoms mask the clinical picture. The dilated rigid pupil suggests impending trouble. If the ophthalmoscope reveals optic neuritis, this is a clue to the diagnosis, but it has no pathognomonic features. At the same time, methyl alcohol poisoning should always be suspected when, along with gastrointestinal symptoms suggesting poisoning, severe disturbance in vision develops suddenly, with central absolute scotoma and contraction of the peripheral field of vision, and the ophthalmoscope shows optic neuritis. The contraction of the peripheral field of vision usually subsides soon, but the scotoma may persist a long time. The prognosis, he thinks, can be estimated from comparison of the findings in the visual field and fundus, and the visual acuity for a few weeks. As long as the visual field keeps enlarging, the process of recuperation is not ended, as also when the absolute scotoma changes to a relative. Even in the mildest cases, more or less impairment of vision is entailed, resembling the symptoms of chronic alcohol-tobacco amblyopia. Disturbances in vision from quinin, atoxyl and arsacetin are by limitation of the visual field, central vision persisting good. With meat and fish poisoning the eye is affected by paralysis of the muscles. Male fern amaurosis alone seems to present the same symptoms as those from methyl alcohol. The ophthalmoscope findings with uncomplicated uremic amaurosis are normal. He regards the fate of the eyes with methyl alcohol amaurosis as usually sealed by the time the patient reaches the physician, and is very pessimistic as to benefit from any measures in treatment. The main point is to recognize its nature promptly and ward off similar injury from others that may be exposed. Promptly seeking out the source and energetic measures may avert much further harm. The methyl alcohol induces rapid degeneration of the nervous apparatus of the eye, affecting the cones of the retina more than the rods, the same as ethyl alcohol, nicotin, thyroidin and carbon bisulphid, while atoxyl and allied substances affect the rods while sparing the cones. There is nothing to indicate inflammatory infiltration in either type.

61. **Differentiation of Nervous Heart Disturbances by Lymphocyte-Count and Epinephrin Eye Test.**—Curschmann calls attention to the importance of lymphocytosis as indicating a substandard constitution, or as the keystone to the diagnosis of toxic influences from the thyroid. It is a symptom that cannot be simulated, and has often proved of decisive value in distinguishing between functional or organic heart disease. He recalls further that instillation of epinephrin in the eye causes mydriasis that is prompt, marked and lasting for several hours, when the thyroid is functioning abnormally. When these two tests elicit a positive response, we should regard subjective symptoms with greater respect. He describes a few typical cases to illustrate the valuable information to be derived from these tests. In one case, for instance, a neurasthenic hypochondriac had palpitation, the pulse often from 116 to 130, blood pressure 140 to 180, tremor, and a tendency to diarrhea, with 45 per cent. lymphocytosis. But there was no trace of enlargement of the pupil on repeated tests with epinephrin. The course of the case confirmed the reliability of the epinephrin test, all the suspicious symptoms gradually subsiding. In another similar case there was even moderate goiter, but the negative epinephrin test confirmed the man's fitness for military service. This case teaches the importance of the epinephrin test when the symptoms indicate aggravation of an abnormal thyroid. With this test the aggravation can be detected in its incipiency, and operative measures applied in time to prevent irreparable damage and realize a complete cure. He makes the epinephrin test by instilling two drops of 1:1,000 solution of epinephrin into the conjunctival sac of one eye. The response is inspected repeatedly during twenty-four hours. This test never causes the least disturbance, he adds, other than the specific response.

63. **Prodromal Symptoms of Cerebral Hemorrhage.**—Kisch calls attention to the enlargement of the area of dulness over

the heart and signs of sclerosis of the cerebral vessels and also of the vessels of the kidneys as signs suggesting impending cerebral hemorrhage in those inclined to corpulence and past 50, especially when associated with functional bowel disturbance. Long before the arteries feel hard or show a tortuous course, a permanently high pulse pressure reveals the tendency to arteriosclerosis, with resulting overwork on the part of the heart. He found the heart hypertrophied in 5 of 13 cases of fatal cerebral hemorrhage, Löwenfeld in 27 of 60, and Kirkes in 17 of 22. The signs of arteriosclerosis of the capillaries in the brain are frequent headaches, frequent transient vertigo, permanently restless sleep, forgetfulness, especially of names and figures, slight motor disturbances in hand or foot, sluggishness in moving the tongue, transient disturbances in speech, various sensory disturbances, chilliness in hands or feet, feeling that they "have gone to sleep," anesthesias and paresthesias. Among the latter he has noticed particularly a sensation of heat on the top of the head, or a burning patch on the skin from the size of a quarter to that of the palm of one's hand. Windscheid and Weber have recently described some mental symptoms and moods as suggestive of arteriosclerosis of the brain.

Kisch regards albuminuria as revealing arteriosclerosis of the kidney vessels in these patients. He has long warned that not enough attention is paid to albuminuria in the corpulent and obese. He found stasis hyperemia in the kidney in 5 of 18 cadavers showing extreme obesity, parenchymatous degeneration in 8, and granular atrophy in 2. Monakow found kidney disease in 30 per cent. of his apoplexy cases. The arteriosclerosis of the viscera is liable to become manifest in meteorism after each meal, a feeling of oppression and pain in the abdomen. Relief is obtained only by loosening everything tight around the body and resting for a time. Constipation and hemorrhoids are also common, the whole suggesting possibly what Ortner calls intermittent intestinal angiosclerotic dyspragia; the pushing up of the diaphragm may add shortness of breath to the clinical picture. Hereditary influences are marked, the apoplexy coming on at about the same age in the different members of a predisposed family; a man and his four sons in one family all succumbed at the same age to apoplexy. Among the factors liable to bring on the catastrophe, besides overexertion, overeating, straining at stool and violent emotions, he lists sudden joy as well as anything that upsets the physiologic or psychologic balance, and sudden extreme vicissitudes of the weather.

67. **A Deficiency Skin Affection.**—Waldheim relates that scattered small bunches on the front of the arms and legs proved to be the first manifestations of disturbances from an unbalanced diet. If the diet was not modified, the nodules became hemorrhagic progressing, if not arrested, to the severest type of papulous hemorrhagic purpura, and pain developed in the calves. Brown, tough, follicular nodules on the front of the arms and legs thus warn that the composition of the blood is suffering from some deficiency in the diet. In his experience, addition of vegetables and fruit put an end to all trouble, but without this some of the cases terminated fatally.

Münchener medizinische Wochenschrift, Munich

February 29, LXIII, No. 9, pp. 305-340

68 Venereal Disease in Garrison During the War. (Die Fortbewegung der Geschlechtskrankheiten in der Festung Breslau während des ersten Kriegsjahres.) M. Chotzen.

69 *No Connection Detectable Between Geologic Formation and Endemic Goiter. (Untersuchungen über den endemischen Kropf mit bes. Berücksichtigung des Vorkommens im Königreich Bayern.) W. Weichardt and M. Wolff.

70 Eucalyptol-Menthol Intramuscular Injections in Prophylaxis and Treatment of Postoperative Bronchitis and Pneumonia. F. Bode.

71 *Color Reaction in Urine With Cancer. (Ueber eine Farbenreaktion in Harnproben bei Magenkarzinom.) N. Welwart.

72 Vessel for Several Cultures at Once. (Eine Kolleflasche für doppelseitige Benutzung — zur Züchtung von Massenkulturen.) G. Wagner.

73 Official Directions for Prophylaxis of Epidemic Poliomyelitis and Puerperal Fever. (Die amtsärztliche Bekämpfung übertragbarer Krankheiten.) M. Henkel.

74 *Analogy Between Typhoid and Paratyphoid. (Ueber Roseola typhosa und paratyphosa.) E. Fraenkel.

75 Vaccination Against Dysentery. (Schutzimpfung gegen Ruhr.) G. Seiffert and O. Niedieck.

76 *Passive Venous Hyperemia in Treatment of War Wounds of Joints. (Ueber Stauungsbehandlung bei Gelenkverletzungen.) A. Linberger.

77 *Sugar in Treatment of Suppurating and Contaminated Wounds. (Zuckerbehandlung eiternder und verunreinigter Wunden.) F. Hercher.

78 Superior Advantages of Open Treatment for Secreting Wounds. (Für die offene Wundbehandlung.) C. v. Wild.

79 Bullet in Pericardium Causing Practically no Disturbance; Two Cases. (Geschosse im Herzbeutel.) L. Müller and W. Neumann.

80 Improved Technic for Artery-Vein Transfusion. (Zur Technik der arteriovenösen Bluttransfusion.) F. Erkes.

81 Portable Privy for the Troops. (Vorschlag zur allgemeinen Einführung verdeckter Müllgruben.) Seelhorst.

82 *Cancer of the Lung. (Fall von bösartiger Neubildung der Lunge.) Herrmann and L. Mayer.

March 7, No. 10, pp. 341-376

83 *Changes in the Blood Under Mesothorium Exposures. (Veränderungen am Blute nach Mesothoriumbestrahlungen.) B. Schweitzer.

84 Neosalvarsan in Treatment of an Epidemic of Relapsing Fever. A. Prüssian.

85 *Importance of Occult Blood as Symptom of Gastric Cancer. (Zur Bewertung des Nachweises okkulten Blutes in Mageninhalt und Stuhl für die Diagnose des Magenkarzinoms.) J. Emmert.

86 Intravenous Injection of Collargol in Treatment of Articular Rheumatism. (Behandlung der Gelenkrheumatismus mit Einspritzung von Kollargol ins Blut.) Wick.

87 Filtering out Excess of Cupric Sulphate Facilitates Trommer's Test. (Ein Hilfsmittel bei Ausführung der Trommerschen Probe.) K. Sauer.

88 *Continuous Passive Venous Hyperemia in Treatment of Severe Wounds of Joints. (Die konservative Behandlung schwerer Gelenkschussverletzungen mit Dauerstauung.) E. Sehrt. Concluded in No. 11.

89 Operative Treatment of Wounded Nerves. (Indikationstellung zur Freilegung verletzter Nerven.) H. Spitzy.

90 *To Prevent Development of Painful Neuromas After Amputations. (Ueber Nervenquetschung zur Verhütung schmerzhafter Neurome nach Amputationen.) H. Krüger.

91 Polyneuritis After Enteritis. Liebers.

92 Grazing Wound of the Skull Causing Motor Aphasia and Loss of Memory; Trephining; Recovery. E. Müller.

93 Cancer on Hand in Scar of War Wound Sixty-Seven Years Later. (Handrückenkarzinom auf der Narbe einer alten Schussverletzung.) E. Melchior.

94 Localization of Foreign Bodies in Chest and Abdomen. (Die Lokalisierung von Fremdkörpern in Brust und Bauch mittelst der Stärkebinde.) J. Rautenkrantz.

95 Support for Radial Paralysis. (Neuer Stützapparat bei Radialislähmung.) H. Hildebrand.

96 Improved Supports for Dressing Wounded Limbs. (Zur Verbandtechnik der Extremitätenschüsse.) E. Rehn; (Stützverbände für die Extremitäten.) E. Feldmann.

69. **Endemic Goiter.**—The testimony presented all speaks against any special geologic formation as responsible for development of goiter.

71. **Urine Color Test for Gastric Cancer.** — Welwart describes a blue color change in the urine which he has encountered only in three cases out of an extensive experience with the test. In each of these three cases there was malignant disease of the stomach. This material is too small for definite statements, but it suggests the advisability of further research in this line on the blue reaction which follows when acetic acid is added to the Legal acetone test.

74. **Typhoid and Paratyphoid Rose-Colored Spots.** — Fraenkel here adds further testimony to the close connection between typhoid and paratyphoid in that the rose-colored spots in both have proved to be a metastasis of bacteria in the lymphatics of the skin. He calls attention also to paratyphoid enteritis and paratyphoid pyelitis or cholecystitis but insists that the term "paratyphoid," as a special clinical picture, should be restricted to the triad: enlargement of the spleen, rose spots and diarrhea, like the triad of typhoid.

76. **Passive Hyperemia in Treatment of Wounds Involving Joints.**—Linberger never approved of Bier's stasis hyperemia as a means of treating arthritis, deeming it not entirely free from danger and requiring too much time and attention. But since Sehrt has reported such excellent results from the continuous application of the constricting band to induce stasis hyperemia, he has taken up the method anew and is now enthusiastic in regard to the superior results attained with it in the eight cases in which it has been systematically applied. They are described in detail as they illustrate the lessened tendency to suppuration and the ease with which it can be conquered if the joint does begin to suppurate. The fever went down rapidly after application of the constricting band

and the pain was mitigated, generally subsiding in from twenty-four to thirty-six hours. The stasis hyperemia permitted exercise earlier, and the functional use of the limb was regained sooner and better than with other technics. See abstract 88.

77. **Sugar as Dressing for Wounds.**—Hercher reviews over a thousand cases of wounds in war which he has treated with pulverized sugar, and states that fifty other physicians are now using it also. It does away with the necessity for rinsing out or irrigating the wound as the sugar causes such profuse oozing of fluid that the wound is copiously washed out from within. Its main efficacy is thus in its stimulation of secretion, diluting and washing out the pus.

82. **Cancer of the Lung.**—The case reported was in a man of 26 and proved fatal in three months after the first symptoms.

83. **Changes in the Blood Under Mesothorium Treatment.**—Schweitzer systematically examined the blood at intervals during courses of mesothorium treatment of inoperable uterine cancer, and reports that as the general health improved the hemoglobin and red count showed some improvement likewise. The leukocytes, however indicated some injury of the blood-producing apparatus, both a relative and absolute lymphocytosis developing, while the proportion of neutrophils declined. These changes persisted for several weeks, and are significant when considered in connection with the six cases of leukemia known to have developed in radiologists. At the same time, the final restoration to its preceding condition of the leukocyte picture in the mesothorium cases indicates that the changes are not vital.

85. **Occult Blood with Gastric Cancer.**—Emmert found occult blood in the stool or stomach content in all but one of twenty-one cases of what proved to be gastric cancer. This symptom is not only exceptionally constant but is present when the patient first applies to the physician, as a rule. In one of his cases there had been symptoms for only four weeks, and operation showed the cancer merely as a thickened patch not as large as a silver quarter. In one case of gallstone trouble the occult blood revealed the presence of the concomitant gastric cancer. A negative response to the guaiac test renders malignant disease in stomach or bowel extremely improbable, he declares. When a gastric ulcer is developing cancer, the regular presence of occult blood gives the clue to what is going on. Even when the stomach is opened up, it is not always possible to distinguish between simple ulcer and cancer. He advises applying the guaiac test at intervals even with certain ulcer, as thus any tendency to cancerous degeneration would be promptly recognized. He examined the stomach content for occult blood in 261 cases, aside from his ulcer patients. The findings were constantly negative except in 10 cases. In 6 of these the response was positive only at the first application of the test and the diet was responsible for it in some of these. No explanation for the positive response could be found in the 4 others, out of the total 261 tested.

88. **Passive Hyperemia in Treatment of Wounded Joints.**—The technic of Bier's stasis hyperemia by means of a constricting band has been materially simplified by Sehrt who applies the band once for all and leaves it undisturbed day in and day out. When the band can be applied within twenty-four up to sixty hours of the injury, the local and general infection was found to be reduced to the minimum and in many cases the infection was entirely aborted. When the injury was destructive and several drains otherwise would have had to be kept in the joint, the induced passive venous hyperemia obviated this and, Sehrt declares, gave results attainable with such regularity by scarcely any other method of treatment. As long ago as July 31 and Aug. 31, 1907, pages 181 and 802, THE JOURNAL reproduced testimony in favor of this method of treating joint trouble with maintenance of function, describing the technic, and Sehrt's recent praise of it for application to gunshot and shell wounds of joints was summarized Oct. 30, 1915, p. 1591. Since passive venous hyperemia has been systematically applied in his service in treatment of all severe wounds on arms or legs, beginning May, 1915, there has been no further case of gas gangrene from a wound on the extremities. The constricting elastic band is applied no tighter than a plaster bandage; the patient must not feel it as painful, and the pulse below must always be palpable. The band is left in place for a week or two weeks in severe cases. The limb swells below the band and may even blister, but the wound is left practically untouched, not even the smallest firmly fastened bone splinter is removed, so as not to open new outlets for lymph and blood. The region is not washed nor irrigated, the wound is merely covered loosely with gauze and the limb fastened loosely on a splint. If the gauze dressing were at all tight it would bind as the region swelled. The limb is placed flat on a pillow. The pain is promptly arrested, but is liable to return if the limb is raised above the horizontal. The gauze is soon soaked with yellow secretions and is protected from flies by covering with fresh gauze. Sometimes nests of maggots were found in the dressings, but they did not injure the wound. As soon as possible, by the fourth, sixth, tenth day, the patient must make movements inside the loose dressing. The only surgical measure applied was incision, under local anesthesia, of a gravity abscess if such developed. If the injury proved in time to be beyond the scope of conservative measures, then whatever operations had to be done had the advantage of not being in exsanguinated and septic tissues. Two illustrations show the exact technic and the details are given of twelve war wounds of the wrist and four of the elbow treated by this method, and a further instalment is to follow. See abstract 76 above.

90. **Prophylaxis of Painful Neuroma After Amputations.**—Krüger explains the bunch that develops at the end of a severed nerve as a physiologic effort toward repair. When the bunch is subjected to pressure or traction, there is liable to be pain. Crushing the nerve with a clamp draws down the nerve sheath over the nerve as it is squeezed into a flat ribbon. There are then merely two sheets of perineurium with merely traces of medulla and endoneurium between. The nerve is cut in the center of the crushed segment, and the perineurium thus forms a closed bag over the end of each stump. The regeneration process can occur only inside this bag, and all danger of a painful neuroma is averted.

Wiener klinische Wochenschrift, Vienna

March 9, XXIX, No. 10, pp. 281-312

97 Traumatic Neuroses in Soldiers on Active Service. (Zur Frage der Beurteilung traumatischer Neurosen im Kriege.) O. Marburg.

98 *Protheses to Relieve Disfigurement From Lupus. (Die Prothesenfrage bei Verstümmelungen nach Lupus vulgaris.) L. Spitzer.

99 Salvarsan or Mercury Dermatitis? (Quecksilber- oder Salvarsandermatitis?) Brandweiner.

100 Syphilis and the Aorta. (Lues und Aorta.) M. Herz.

101 Pains in the Legs in Trench Fighting. (Ueber Schmerzen in den Beinen bei im Felde stehenden Soldaten.) O. Pritzi.

102 A Trench Disease. (Eine Erkrankung des Schützengrabens.) A. Grätzer.

103 Skull Wounds in War. (Feldspitalärztliche Betrachtungen über Schädelverletzungen.) M. Cernic. Commenced in No. 9.

98. **To Correct Disfigurement from Lupus.**—THE JOURNAL has already mentioned Lang's method of providing the patients with a cast on which they make a gelatin mold that can be worn as a false nose or ear or other part desired. Spitzer here describes some specially striking cases, with illustrations before and after, of twenty-one of these "face cripples" as he calls them. The minute details for making and tinting the casts are given. They can be worn for two or three days or longer in damp weather. The gelatin casts can be melted up and used over and over again. The whole procedure takes only ten or fifteen minutes, and he trains each one to make his own casts from the first. See abstract 118 below.

Policlinico, Rome

March 12, XXIII, No. 11, pp. 325-356

104 Localization of Projectiles. (Sopra un metodo semplice ed esatto per la localizzazione radiografica dei corpi estranei.) F. Ghilarducci.

March, Medical Section, No. 3, pp. 65-96

105 Pathologic Anatomy of Paratyphoid. B. Lunghetti.

106 Pathogenesis and Etiology of Acromegaly. R. Massalongo and C. Piazza. Commenced in No. 2.

Brazil-Medico, Rio de Janeiro

February 19, XXX, No. 8, pp. 57-64

107 *Leishmaniosis of the Skin. (Observação de um caso de leishmaniose cutanea.) O. Torres.

108 The Alveolar Tension in Regulation of the Ventilation in the Lungs. (Sobre a regulação da ventilação pulmonar.) M. O. de Almeida.

107. **Leishmaniosis of the Skin.**—The case reported by Torres is unusual on account of the number of the sores, thirty-five active ones being counted along with twenty-nine scars of extinct sores, and nearly all arranged symmetrically. This latter feature suggests the influence of the nervous system as affording a predisposition for the locating of the lesions, direct contagion not being possible for most of the symmetrical sores scattered from head to foot. Tartar emetic displayed its usual efficacy in treatment. It was given by intravenous injection of a 2 per cent. solution, to a total of sixteen injections in the course of two months.

Russkiy Vrach, Petrograd

XV, No. 1, pp. 1-24

109 *Diathermia of the Cervical Spine. A. E. Sheherbak.

110 *Symptoms and Treatment of Gaseous Gangrene. A. A. Opokin.

111 Annual Report of the Psychiatric Department of the Russian Red Cross Society. M. K. Voskressensky.

No. 2, pp. 25-48

112 *K. A. Rauchfuss. N. I. Lunin; J. P. Serk; A. N. Shabanoff; N. P. Blumenau; S. A. Ostrogorsky.

113 Palpability and Technic for Palpation of the Liver. (O proshchupivaemosti i proshchupivanii pecheni.) V. P. Obroztzoff.

114 Extension and Bridge Plaster Dressings for Gunshot Fractures. V. K. Shamarin.

115 Huge Ovarian Cysts; Two Cases. V. I. Telegra.

No. 3, pp. 49-72

116 Mineral Mud in Treatment of the Wounded. (Opit liecheniya 137 ranenikh i bolnikh Eltonskoe gryaziu.) M. L. N. Oleinikova.

109. **Diathermia of the Spine in the Neck.**—Shcherbak used diathermia by applying for five or six minutes, every other day, one electrode (57.5 sq. c.) to the cervical region, the other to the middle of the dorsal region, the strength of the current being 0.5 to 0.7 amperes. The duration of the treatment averaged ten to fifteen applications. He obtained good results in various organic nervous affections (syphilis, etc.) and especially in functional nervous derangement accompanied by vascular disorders of the brain (angioneuroses), in the form of active or passive hyperemia. The blood pressure usually showed a fall after fifteen or twenty applications.

110. **Gas Gangrene.**—Opokin found gaseous gangrene in 0.6 per cent. of wounded soldiers, mostly in a very severe form, with pronounced edema of the limbs, gaseous crepitation, dark brownish color, icteroid sclerae and skin and poor pulse, with unimpaired consciousness. These symptoms usually developed within two or three days after the lesion. The gas spreads along the subcutaneous tissue which appeared marbled with dark-brownish or sometimes copper-red spots of various sizes. The edema was usually intense, especially in the necrotic areas, and the edematous limbs were devoid of sensation. The temperature was about 104 F. There was no line of demarcation. The secretions from the wounds were ichorous fetid. The full clinical picture may develop within twenty-four to forty-eight hours, depending on the virulence of the infection. The pathologic varieties are the subfascial form when the process is diffuse, all the tissues being involved, and the epifascial form in which the gangrene spreads along the subcutaneous tissue without penetrating deep. First of all the muscles suffer, followed by the deep layers of the subcutaneous tissues. The histopathologic changes consist in acute exudation without small-cell infiltration. These symptoms differentiate gas gangrene from similar clinical manifestations, as acute purulent edema, or false traumatic aneurysm which, however, may coexist with the gaseous gangrene. Numerous wide incisions with draining and removal of the foreign bodies, amputations and resections were the principal surgical measures applied. Of fifteen patients thus treated, six recovered; without operation four were treated and all died. In mild cases, which were comparatively rare, conservative methods, such as vaccination, etc., are to be recommended.

112. **K. A. Rauchfuss.**—The recent death of K. A. Rauchfuss was mentioned in THE JOURNAL, February 26. He was the patriarch of Russian pediatrics, the founder of the pioneer Oldenburg Children's Hospital in Petrograd, the creator of laryngology in Russia, the perfector of O'Dwyer's intubation apparatus, and the author of numerous treatises on diseases of children. He was active as a citizen and in the field of organization of an institute for spreading sane ideas in regard to reducing infant mortality in Russia. In 1894 he was offered the chair of pediatrics in the University of Berlin, but he declined it in favor of Heubner, who is said to have been selected on his recommendation.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

February 26, I, No. 9, pp. 733-812

117 *Vision a Psychic Process. (Een theorie der hypermetropie.) M. Straub.

118 *Artificial Noses and Ears Made of Gelatin. (Aangezichtsprothesen.) A. S. Jacobson.

119 Useless Operations. (Noodelooze, dus ongewenschte operaties.) G. A. Van Lecuwen.

120 *Colles' Law. (Bijdrage tot de wet van Colles-Baumes.) C. Kroon.

March 4, No. 10, pp. 813-888

121 *Typhoid Among Belgian Refugees in Holland. (Over typhoied en typhoiedenting in het vluchtoord te Hontenisse.) C. A. Cammaert.

122 Consumption of Oxygen in the Serum of Warm-Blooded Animals. (Over het zuurstofverbruik in het serum van warmbloedige dieren.) F. J. J. Buytendijk.

123 Primary Cancer of the Liver. M. J. Roessingh.

March 11, No. 11, pp. 889-960

124 Three Previously Unpublished Letters of J. C. Peyer, 1653-1712. E. C. van Leersum.

125 *Study of the Renorenal Reflex, Kidney Stones and Pyelitis. (Iets over reno-renale reflexen, niersteen en nierbekkencatarrh.) A. Bijnen.

126 Life Insurance and Periodical Reexamination. (Levensverzekering en levensverlenging.) J. S. Van Heukelom.

117. **Theory of Hypermetropia.**—Straub states that he has worked for years to explain hypermetropia on a mechanical basis, and has had to abandon the attempt. All the evidence that he has accumulated testifies exclusively to the psychic nature of hypermetropia. All vision is a psychic phenomenon, and nearly all children are born hypermetropic. The majority are emmetropic when they reach school. Cases of squint demonstrate that the change occurs during the third year. Older persons notice that the child begins to squint at this time and to use one eye more than the other. By systematic exercises the eyes can be trained at this period to overcome the tendency to squint. In the fourth and fifth year the vision in the neglected eye may grow weaker, but may be strengthened by exercises. Hypermetropia likewise probably becomes settled during the third year, as the child then determines its mode of fixation. The hypermetropic see the world entirely different from the emmetropic, and no one can explain the phenomena of vision without taking the consciousness into consideration.

118. **To Correct Disfigurement from Lupus.**—Jacobson is enthusiastic over his success in supplying patients with protheses to remedy the ravages of lupus, etc., and reports a number of striking cases with illustrations before and after. He takes a cast of the face, models it to the desired outline, and then has a copper mold made from this. The patient is then supplied with a hard gelatin mixed with twice its weight of glycerin, a little water and quinin as a preservative, tinted to match the patient's complexion. This is heated in the water bath and poured into the copper mold and sets in a few minutes, thus providing an artificial nose, ear or cheek, which is light and elastic and fits perfectly to the face, to which it is stuck with mastix varnish. As the nose thus made is elastic, it moves with the muscles around, like a natural nose, and in every respect, he declares, is better than the noses made by autoplastic operations. The gelatin nose can be melted up and a new one made in a few minutes. Small defects in the face can be remedied readily by this method, and he says the gratitude of this class of patients is most touching, as they mingle unnoticed with their kind once more instead of being pointed out wherever they go. The prothesis for one young man with exceptionally destructive

lesions included the nose, upper lip and both cheeks. No illustration is given of this patient. See abstract 98 above.

120. **Colles' Law.**—Kroon relates that Finger for a time was the only syphilologist who still admitted the possibility that a woman could bear a syphilitic child without being herself syphilitic, the Wassermann reaction having shown that many apparently healthy mothers of syphilitic children yet in reality were infected. Recently, however, some scanty testimony has been collected which sustains Colles' law. Ledermann has reported three cases and Nonne in the latest edition of his book mentions some cases in which the wives of men with tabes or paralysis bore syphilitic children and yet never responded positively to the Wassermann test or showed any signs or symptoms suggesting syphilis. To this small list Kroon adds a typical case corresponding in every point to the requirements of Colles' law. The robust woman of 28 had already had eight abortions when delivered of a child with numerous external manifestations of syphilis. Her husband had been infected with syphilis twelve years before but she seemed absolutely exempt and the Wassermann reaction in the blood was negative, at two tests with a month's interval. The child was twelve weeks old and had bloody discharges from the nose, cracks in the lips and papules at the anus. The woman fed the child herself, and Kroon, assuming that she was nonsusceptible, did not attempt any treatment.

121. **Typhoid Among Belgian Refugees in Holland.**—Cammaert relates that typhoid bacilli carriers were evidently responsible for the epidemic of typhoid at the refugee camp at Hontenisse. There were 5 deaths in the 65 cases; then the epidemic was arrested by antityphoid inoculation of 996 persons. There was considerable resistance to the vaccination at first, but a cigar for the men and some trifle for the women dissipated all reluctance. In 9 cases the vaccination was done during the incubation stage of typhoid; these cases are described in detail to show the influence of the procedure on the disease process. It induced a negative phase, permitting the virus of the disease a firmer hold, or caused actual sepsis with the living typhoid bacilli, severe symptoms developing in two hours, but the disease running a favorable course after the first stormy onset in most cases. With a weak heart there is grave danger from this sudden invasion of the blood by typhoid bacilli, as he shows by the case of a woman of 55 (not vaccinated) who died the second day of typhoid and the bacilli were found in the blood.

125. **The Alleged Renorenal Reflex.**—Bijnen recalls that when a patient complains of pain in the kidney region and the urine shows signs of kidney stone or catarrhal pyelitis, roentgenoscopy is liable to show normal conditions on the side of the pains and a stone in the supposedly sound kidney. He has had six cases of this kind in the course of three years. In five there were signs of pelvic catarrh on the side of the pains, and clinically normal conditions were restored by direct medication of the kidney pelvis, although the stone in the other kidney was not removed. In the sixth case there was a stone in each kidney, and the ureter catheter findings were entirely normal on the side of the pains. This suggested the *réflexe douloureux*, but no operation was attempted. A few months later, signs of a gastric ulcer developed, and gastro-enterostomy was done. The pains in the kidney region then subsided at once and permanently. They had evidently been pains connected with the gastric ulcer, localizing in the left kidney region. In none of the six patients was it necessary to assume a renorenal reflex to explain the phenomena, and recovery occurred in all without special treatment of the diseased kidney from which the supposed renorenal reflex presumably emanated. That kidney stones may be present without causing symptoms is evident from another group of eight cases—out of twenty-four—in which kidney stones were revealed by roentgenoscopy but they had never caused any disturbance. In three cases both kidneys had stones but there was pain in only one kidney. In five cases the pains were due to catarrhal trouble of the pelvis, the stones in the other kidney causing no disturbance. Bijnen exposes both kidneys at once to the rays, the plate thus taking in the whole urinary apparatus, and thus the kidney stones in this group of eight cases were a casual discovery. In two other recent cases there seemed to be reflex anuria, but the course of the cases showed pyelitis in one kidney, cured by direct medication, and obstruction of the outlet by stones in the other kidney. Without roentgenoscopy, these would have been cited as typical instances of reflex anuria. He has never witnessed any injury from injection of a silver salt directly into the kidney pelvis, as he has applied it in almost 200 cases. When nephrectomy was required later, he never saw any signs that harm had been done by the intrapelvic injections.

Norsk Magazin for Lægevidenskaben, Christiania

March, LXXVII, No. 3, pp. 317-452

127 *Melanosarcoma in the Eye; Thirty-Four Cases. (Melanosarkom i øiet.) S. Hagen.

128 Anatomy and Pathology of the Coronary Circulation. (Spredte bemerkninger om hjertets coronarkredsløp; dets anatomi og patologi.) A. Vetlesen.

129 Diabetes With Pregnancy. (Et nyt tilfælde av diabetes med graviditet.) H. C. Geelmuyden.

127. **Melanosarcoma in the Eye.**—Hagen states that the growth in the choroid or ciliary body was removed in an early stage in 6 of the 34 cases. It had reached the second stage in 14 other operative cases, and an advanced stage in 8. In another case the sarcoma was in the iris and was successfully removed, and in the 5 other cases the growth issued from the conjunctiva. Each case is described in detail. There has been no recurrence among the 20 cases in the first or second phase of the growth but in 3 of the 7 more advanced cases the growth has returned. Recurrence is thus less to be feared than metastasis. This occurred in 8 cases, the patients succumbing to the metastasis in from two years and five months to four years after the operation, except in one case in which the interval was six years. When four years have elapsed without recurrence or metastasis, we can regard the patient as almost certainly out of danger. In the three cases of recurrence, the intervals were from one to six months. The intensity of the pigmentation and the character of the cells and vascularity of the tumor do not seem to have any influence on the prognosis.

Ugeskrift for Læger, Copenhagen

March 9, LXXVIII, No. 10, pp. 329-368

130 *Changes in the Blood Under Arc Light Therapy. (Kliniske Iagttagelser over Kulbuelysbades Indvirkning paa Blodet hos Patienter, lidende af Lupus vulgaris og kirurgisk Tuberkulose.) A. Hansen.

131 *Purgatives for Infants. (Om Afføringsmidler i den spæde Barnealder—Sp. Amerikansk Olie.) E. F.-Bjerre.

130. **Changes in the Blood Under Influence of Phototherapy.**—Hansen writes from the Finsen Light Institute to report the blood findings under a course of exposures to the artificial chemical rays of the carbon arc light in treatment of lupus or tuberculous lesions in bones or joints. This institute is said to have been the pioneer in this method of treatment with the carbon arc light alone in these affections, and he tabulates the findings in 56 patients whose blood was tested repeatedly during the exposures. There were 4 under 10 and 22 over 30; 13 were males. In one patient the hemoglobin percentage had increased by 14 marks between the first and last examination, the average increase being 5.6 marks on the Sahli hemometer. (With this, 80 is the normal figure for men and 70 for women). All the patients increased in weight except 6 over 20 whose weight did not vary, and 2 under 20, who lost somewhat in weight. The number of reds also increased. This increase was most pronounced during the early part of the course, suggesting a direct stimulating action from the light.

131. **Purgatives for Infants.**—Bjerre extols calomel as the best theoretically and also the best in his practical experience when acute gastro-enteritis requires a purge. Chronic constipation does not require anything beyond the proper diet and enemas, stopping milk for a time and giving soft mashed vegetables, cooked fruit, etc. He denounces the use of laxatives for infants except in an emergency, and says that castor oil should never be given to infants in a teaspoonful dose, but only by the drop. A teaspoonful corresponds to five times the dose for an adult, comparatively speaking.